This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

Transactions of the Royal Academy of Medicine in Ireland

Academy of Medicine in Ireland

Digitized by Google

Digitized by Google

Digitized by Google

O'C

Digitized by Google

TRANSACTIONS

OF THE

ROYAL ACADEMY OF MEDICINE IN IRELAND.

Digitized by Google

Digitized by Google

TRANSACTIONS

OF THE

Royal Academy of Medicine

IN IRELAND.

VOL. XXV.

EDITED BY
JAMES CRAIG, M.D., F.R.C.P.I.,
GENERAL SECRETARY;
PHYSICIAN TO THE MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY.

DUBLIN:
JOHN FALCONER, 53 UPPER SACKVILLE ST.
LONDON: BAILLIÈRE, TINDALL & COX.
EDINBURGH: JAMES THIN.
BRISTOL: JOHN WRIGHT & CO.

1907.

Digitized by Google

CATALOGUED
SEP 9 1907

Printed by
JOHN FALCONER,
53 Upper Sackville Street, Dublin.

BOSTON MEDICAL
SEP 9 1907
LIBRARY.

Digitized by Google

CONTENTS.

	Page
List of Officers,	ix
List of Fellows,	xiii
List of Members,	xxiv
List of Student Associates,	xxv
Rules,	xxvii
Annual Report,	xxxv
Treasurer's Report,	xxxviii

SECTION OF MEDICINE.

		Page
The so-called functional cardiac murmurs	Dr. R. Travers Smith	1
Splenomegaly with eosinophilia	Dr. A. R. Parsons	15
Our debt to Ireland in the study of the circulation	Dr. G. A. Gibson	23
The treatment of gastric ulcer	Dr. James Little	70
The treatment of non-malignant gastric ulcer	Sir Charles Ball	80
Gastric ulcer: its diagnosis and treatment	Dr. James Alex. Lindsay	88
Contribution to a discussion on the treatment of gastric ulcer from a surgical standpoint	Mr. A. B. Mitchell	91
Maniacal chorea	Dr. J. Magee Finny	94
Movable spleen	Dr. T. G. Moorhead	108
Pseudo-renal colic	Dr. A. R. Parsons	117
A case of Addison's disease with rapidly fatal termination	Dr. M. J. Dempsey	123
Note on a case of cerebro-spinal fever occurring in a child the subject of lymphatism	Dr. G. Peacocke	126
Cases of tuberculosis treated by Professor Deny's tuberculin	Dr. F. J. Dunne	130
A case of myelogenous leukæmia	Dr. A. R. Parsons	137
Notes of a case of cerebello-pontine cyst	Dr. G. Peacocke	142
Lympho-sarcoma of the lung	Dr. James Craig	146
Abstracts of Meetings of the Section of Medicine		150

SECTION OF SURGERY.

Sphincteric control of the male bladder, and its relation to prostatectomy	Mr. C. Arthur Ball	153
Limits of abdominal operations	Mr. T. E. Gordon	163

Digitized by Google

		Page
Some points in the treatment of enlarged prostate	Mr. Leveson-Gower Gunn	170
An early case of leontiasis ossea	Mr. S. Horace Law	176
A case of chronic pancreatitis	Mr. W. I. de C. Wheeler	180
Fractures of the shaft of the femur—a discussion on their treatment and prognosis	Sir Thomas Myles	188
Intestinal obstruction	Mr. William Taylor	206
Abstracts of Meetings of the Section of Surgery		218

SECTION OF OBSTETRICS.

A case of labour obstructed by a fibroid tumour	Dr. R. J. Kinkead and Dr. R. J. Rowlette	227
A contribution to the technique of operations on the uterine appendages	Dr. Henry Jellett	233
Pubiotomy, with notes of three cases	Dr. M. J. Gibson	256
Delivery by pubiotomy	Dr. E. H. Tweedy	266
Report of the Rotunda Hospital, 1905–6	Dr. E. H. Tweedy and Dr. Holmes	272
Two successful cases of Cæsarean section	Dr. C. Y. Pearson	327
Abstracts of Metings of the Section of Obstetrics:—		
Fibro-cystic tumour	Sir W. J. Smyly	333
Repeated twin abortions and ventro-suspension	Dr. J. S. Sheill	334
New form of pessary for use in uterine prolapse	Dr. G. R. S. Stritch	337
Uterus with cancer of cervix and fundus	Dr. H. Jellett	338
Ovarian cyst	Sir W. J. Smyly	339
Vesical calculus	Dr. Alfred Smith	339
Uterus showing a fibro-myoma in fundus and cancer in cervix	Dr. Alfred Smith	342
Carcinoma of body of uterus	Sir A. V. Macan	342
Sarcoma of body of uterus	Sir A. V. Macan	342
Vulsellum forceps	Dr. Ashe	343
Eclamptic patient	Dr. J. S. Sheill	343
The method of Bier in gynæcology	Dr. J. S. Sheill	345
Uterine dilator	Dr. A. J. Horne	346
Uterus removed by "Verder's method"	Dr. H. Jellett	347

SECTION OF PATHOLOGY.

Cryoscopy of the urine	Mr. L. G. Gunn	349
A case of suffocative hydrothorax in which the pleuræ were tapped several hundred times	Dr. J. F. O'Carroll.	355
A sacro-coccygeal teratoid tumour	Mr. Seton Pringle	358
Pathological Report of Rotunda Hospital, 1905–6	Dr. R. J. Rowlette	309

Digitized by Google

		Page
The Bacteriology of cerebro-spinal meningitis	Prof. E. J. McWeeney	367
Vaccine inoculation and the opsonic index	Professor A. H. White	379
Abstracts of Meetings of the Section of Pathology:—		
Pancreatitis	Dr. H. C. Earl and Dr. W. G. Harvey	406
Carcinoma of the breast	Mr. Jameson Johnson	407
Pathological effects of Röntgen rays on animal tissues	Dr. W. G. Harvey	408
Uncinaria duodenalis	Prof. E. J. McWeeney	411
Specimen after Talma-Morrison operation	Dr. T. G. Moorhead	412
Traumatic rupture of the heart	Mr. Wheeler	413
Urinary tuberculosis	Mr. L. G. Gunn	413
Liver with cirrhosis and carcinoma—A case of lymphatism	Dr. A. R. Parsons	414
Organisms from cerebro-spinal meningitis	Prof. A. H. White	416
Abscess of cerebellum	Dr. W. Boxwell	418
Sacroma of femur, Tubercular knee-joint	Mr. L. G. Gunn	419
Cerebro-spinal meningitis	Dr. W. G. Harvey	420

SECTION OF STATE MEDICINE.

Poor Law Medical Service in Ireland	Dr. T. Donnelly	421
Remarks on the policy with regard to tuberculosis, outlined in the Report of the Poor-Law Commission	Prof. E. J. McWeeney	438
The State and syphilis	Dr. G. R. S. Stritch	448

SECTION OF ANATOMY AND PHYSIOLOGY.

Lateral fixation of the cervix uteri	Dr. Ella Ovenden	472
Models illustrating the movements of the wrist bones	Dr. H. M. Johnston	478
Abstracts of Meetings of the Section of Anatomy and Physiology:—		
The musculature of the villi	Mr. F. O'B. Ellison	480
"Phosphorus-Muscarine"	Mr. Wm Caldwell	481
Two adult subjects cut in the long median plane	Professor Fraser	482
Specimens to display the anatomy of the air sinuses communicating with the nasal cavities	Prof. Symington	483
Double ureters	Prof. Fraser	484
Sacral nerves	Prof. Fraser	485

Digitized by Google

LIST OF ILLUSTRATIONS.

	Page
Notes on a case of cerebello-pontine cyst (Dr. G. Peacocke)	142
A Sacro-coccygeal teratoid tumour (Mr. Seton Pringle)	358
Vaccine inoculation and the opsonic index (Prof. A. H. White)	379
The State and syphilis (Dr. G. R. S. Stritch)	448

Digitized by Google

ROYAL ACADEMY OF MEDICINE IN IRELAND.

ESTABLISHED 1882.

SESSION 1906-1907.

President:
JOHN MAGEE FINNY, 36 Merrion Square.

General Secretary and Treasurer:
JAMES CRAIG, 18 Merrion-square.

Secretary for Foreign Correspondence:
SIR JOHN W. MOORE, 40 Fitzwilliam-square.

General Council:

J. MAGEE FINNY, President.
SIR JOHN BANKS, K.C.B., Ex-President.
JAMES LITTLE, Ex-President.
LOMBE ATTHILL, Ex-President.
SIR THORNLEY STOKER, Ex-President.
SIR WILLIAM THOMSON, C.B., Ex-General Secretary.
JOHN B. STORY, Ex-General Secretary.
JOSEPH M. REDMOND, President of Medical Section.
HENRY R. SWANZY, President of Surgical Section.
R. D. PUREFOY, President of Obstetrical Section.
J. F. O'CARROLL, President of Pathological Section.
A. F. DIXON, President of Section of Anatomy and Physiology.
F. C. MARTLEY, President of Section of State Medicine.
SIR JOHN W. MOORE, Secretary for Foreign Correspondence.
JAMES CRAIG, General Secretary and Treasurer.
F. C. PURSER, Secretary Medical Section.
EDWARD H. TAYLOR, Secretary Surgical Section.
HENRY JELLETT, Secretary Obstetrical Section.
A. H. WHITE, Secretary Pathological Section.
E. P. M'LOUGHLIN, Secretary Section of Anatomy and Physiology.
W. A. WINTER, Secretary Section of State Medicine.

G. PEACOCKE,
W. J. THOMPSON, } Representatives from Medical Council.

R. C. B. MAUNSELL,
WILLIAM TAYLOR, } Representatives from Surgical Council.

A. J. HORNE,
F. W. KIDD, } Representatives from Obstetrical Council.

J. A. SCOTT,
H. C. EARL, } Representatives from Pathological Council.

Digitized by Google

Council of Medical Section:

President—JOSEPH M. REDMOND, President of the Royal College of Physicians.

1. *Secretary*—F. C. PURSER, 20 Lower Baggot-street.

2. J. B. COLEMAN,
3. W. R. DAWSON,
4. H. C. DRURY,
5. T. P. C. KIRKPATRICK,
6. A. R. PARSONS,
7. G. PEACOCKE,
8. W. LANGFORD SYMES,
9. W. J. THOMPSON,
10. W. A. WINTER.

Council of Surgical Section:

President—HENRY R. SWANZY, President of the Royal College of Surgeons.

1. *Secretary*—E. H. TAYLOR, 77 Merrion-square.

2. C. A. BALL,
3. ALEX. BLAYNEY,
4. SIR ARTHUR CHANCE,
5. T. E. GORDON,
6. W. S. HAUGHTON,
7. G. JAMESON JOHNSTON,
8. J. LENTAIGNE,
9. R. C. B. MAUNSELL,
10. WILLIAM TAYLOR.

Council of Obstetrical Section:

President—R. D. PUREFOY, 62 Merrion-square.

1. *Secretary*—HENRY JELLETT, 61 Lower Mount-street.

2. PAUL CARTON,
3. GIBBON FITZGIBBON,
4. R. H. FLEMING,
5. A. J. HORNE,
6. F. W. KIDD,
7. SIR A. V. MACAN,
8. A. J. SMITH,
9. SIR W. J. SMYLY,
10. E. H. TWEEDY.

Council of Pathological Section:

President—J. F. O'CARROLL, 43 Merrion-square.

1. *Secretary*—A. H. WHITE, Royal College of Surgeons.

2. A. H. BENSON,
3. J. B. COLEMAN,
4. H. C. EARL,
5. L. G. GUNN,
6. E. J. MCWEENEY,
7. H. C. MOONEY,
8. T. G. MOORHEAD,
9. A. R. PARSONS,
10. J. A. SCOTT.

Digitized by Google

Council of Section of Anatomy and Physiology:

President—A. F. DIXON, Anatomical Department, Trinity College.

1. *Secretary*—E. P. M'LOUGHLIN, University Medical School, Cecilia Street.

2. D. J. COFFEY,
3. A. FRASER,
4. H. M. JOHNSTON,
5. J. A. SCOTT,
6. W. H. THOMPSON.

Council of Section of State Medicine:

President—F. C. MARTLEY, 71 Lower Baggot-street.

1. *Secretary*—W. A. WINTER, 2 Upper Leeson-street.

2. A. E. Boyd,
3. T. P. C. KIRKPATRICK,
4. E. J. MCWEENEY,
5. J. A. MATSON,
6. SIR JOHN MOORE.

Reference Committee:

1. E. J. MCWEENEY,
2. A. J. SMITH,
3. T. P. C. KIRKPATRICK,
4. ALEX. BLAYNEY.

Digitized by Google

HONORARY FELLOWS.

1903 Bergmann, Professor von, Berlin.
1885*Billroth, Professor T.
1899*Burdon-Saunderson, Sir J., Bart., M.D., F.R.S., Oxford.
1903 Brouardel, Professor, Paris.
1885*Charcot, Professor.
1885 Emmet, Thomas Addis, 9 Madison Avenue, New York.
1885*Flint, Professor Austin.
1904 Fuchs, Professor E., Vienna.
1885 Hutchinson, Jonathan, F.R.S., London.
1885*Jenner, Sir William, Bart., F.R.S.
1885*Keith, Thomas.
1899 Kelly, Professor Howard, Baltimore.
1899 Koch, Professor, Berlin.
1899 Kocher, Professor, Bern.
1885*Kölliker, Professor.
1899 Leber, Professor Th., Heidelberg.
1885 Lister, Right Hon. Baron, F.R.S., London.
1885*Ludwig, Professor.
1899*MacCormac, Sir W., Bart., K.C.V.O.
1899 Martin, Professor, Berlin.
1899*Nothnagel, Professor.
1899 Osler, Professor, Oxford.
1885*Paget, Sir James, Bart., F.R.S.
1885*Pasteur, Professor.
1900 Politzer, Professor Adam, Vienna.
1903 Pye-Smith, P. H., F.R.S., London.
1885 Recklinghausen, Professor von, Strasburg.
1885*Schroeder, Professor.
1885 Simon, Sir J., F.R.S., London.
1903 Treves, Sir Fred., Bart., London.
1899 Turner, Sir W., F.R.S., Edinburgh.
1885*Virchow, Professor.

* Dead.

Digitized by Google

FELLOWS.

[*The figures prefixed denote the date of election. The figures appended to Names denote the number of Communications. Original Fellows are marked* †.]

1903 AHERN, W. F., M.D., Columba House, Howth.

1893 ALLWORTHY, S. W., M.D., Bch., D.P.H., Dub., Physician Hospital for Skin Diseases, The Manor House, Antrim-road, Belfast.

1907 ANDERSON-BERRY, D., M.D., Edin., West Brom., St. Leonards, Sussex.

1906 ARCHER, S. A., Captain R. A. M. C., 12 Montpelier Hill.

1905 ASHE, JAMES S., L.R.C.P. & S.I., Lecturer on Materia Medica, Ph. Soc., Ireland, 61 Waterloo-road, Dublin.

† ATTHILL, LOMBE, M.D., Ex-President R.C.P., L.M.O.S., late Master Rotunda Lying-in Hospital, Monkstown Castle, Co. Dublin.

† BALL, SIR CHARLES BENT, M.D., F.R.C.S., Regius Professor of Surgery, Univ. Dub., Surgeon Sir P. Dun's Hospital, 24 Merrion-square, N., Dublin. [1]

1903 BALL, CHARLES ARTHUR K., M.D., F.R.C.S., Assistant Surgeon Sir P. Dun's Hospital, 12 Lower Mount-street. [1]

† BANKS, SIR JOHN, K.C.B., M.D., Ex-President R.C.P., Ex-President British Medical Association, Physician-in-Ordinary to His Majesty the King in Ireland, 45 Merrion-square, East, Dublin.

† BARTON, JOHN, M.D., F.R.C.S., Secretary of Council, Royal College of Surgeons, 10 Mount-street Crescent, Dublin.

† BEATTY, WALLACE, M.D., F.R.C.P., Physician Adelaide Hospital, 38 Merrion-square, E., Dublin.

† BENSON, ARTHUR HENRY, F.R.C.S., Ophthalmic Surgeon Royal City of Dublin Hospital, Surgeon Royal Victoria Eye and Ear Hospital, 42 Fitzwilliam-square, W., Dublin.

1905 BENSON, C. M., M.B., B.Ch., F.R.C.S., Asst.-Surgeon Sir Patrick Dun's Hospital, 65 Lower Baggot-street.

† BENSON, J. HAWTREY, M.D., F.R.C.P., Consulting Physician Royal City of Dublin Hospital, 57 Fitzwilliam-square, N., Dublin.

1887 BERRY, WM., L.R.C.P. Edin., F.R.C.S., Surgeon Royal Albert Edward Infirmary, Park House, Wigan.

1904 BEVERIDGE, W. J., L.R.C.P. & S., M.D., Broix. Government Hospital, Kalgoorlie, Western Australia.

1887 BEWLEY, HENRY T., M.D., F.R.C.P., Lecturer on Medical Jurisprudence and Hygiene, Trin. Coll., Physician Adelaide Hospital, 89 Merrion-square, Dublin.

Digitized by Google

1895 BLAYNEY, ALEX. J. M., M.A., M.B., B.Ch., R.U.I., F.R.C.S., Surgeon Mater Misericordiæ Hospital, 15 Merrion-square.

1905 BOYD, ALFRED E., M.B., B.Ch., D.P.H., Anæsthetist Richmond Hospital, 4 Fitzwilliam-square, Dublin.

1898 BRADSHAW, SAM. J. M., M.D., 1 Tempè-terrace, Dalkey.

1883 BROWNE, J. WALTON, A.B., M.D., Surgeon to the Royal Victoria Hospital, 10 College-square, North, Belfast.

1884 BURGESS, JOHN J., F.R.C.S., late Assistant Surgeon to the Richmond Hospital, 22 Westland-row, Dublin.

1891 BYRNE, HERBERT U., M.B., B.Ch., Univ. Dublin, Medical Officer No. 4 Dispensary District, South Dublin Union, Physician Cork-street Hospital, 15 Upper Merrion-street, Dublin.

1891 BYRNE, LOUIS A., L.R.C.P., F.R.C.S., Surgeon Jervis-street Hospital, 50 Merrion-square, Dublin.

1900 CANILLA, GONZALO, L.R.C.P. & S., Villa de Lourdes, South Barrack road, Gibraltar, Spain.

1898 CARAHAR, MORE, L.R.C.P. & S., L., Johnsfort House, Drumcondrath, Co. Meath.

1900 CARTON, PAUL, M.D., Ex-Assistant Master Rotunda Hospital, 35 Rutland-square.

1884 CHANCE, SIR ARTHUR, Ex-President R.C.S., Surgeon to Mater Misericordiæ Hospital, 90 Merrion-square.

1900 CLARKE-BAYLIS, J. W., L.R.C.P. & S., Southwick, near Fareham, Hants.

1891 COFFEY, DENIS J., M.B., Professor of Physiology Catholic University Medical School, Dublin.

1897 COLAHAN, NICHOLAS WHISTLER, M.D., M.Ch., Professor of Materia Medica and Therapeutics Queen's College, Villa, Galway.

1891 COLEMAN, JAMES BYRNE, C.M.G., M.D., F.R.C.P., Physician to Richmond, Whitworth, and Hardwicke Hospitals, and to Nat. Hosp. for Consumption, 9 Merrion-square, Dublin.

† COPPINGER, CHARLES, M.D., F.R.C.S., Surgeon to the Mater Misericordiæ Hospital, 17 Merrion-square, Dublin.

1901 COSTELLO, M. B., M.B., B.Ch., R.U.I., Dunmore, Co. Galway.

1883 COX, MICHAEL F., F.R.C.P., Physician St. Vincent's Hospital 26 Merrion-square, Dublin.

Digitized by Google

1889 CRAIG, JAMES, M.D., F.R.C.P., Physician Meath Hospital, 18 Merrion-square, Dublin. [1]

1898 CRAWLEY, FRANK CHETWODE, M.D., Univ. Dub., F.R.C.S., Clinical Assistant Royal Victoria Eye and Ear Hospital, 41 Lower Baggot-street, Dublin.

1897 DARGAN, W. J., M.D., Assistant Physician to St. Vincent's Hospital, 45 St. Stephen's-green.

1889 DAVIS, F. A. G., M.B., L.R.C.S., Demonstrator of Anatomy R.C.S., 30 York-street, Dublin.

1898 DAWSON, W. R., M.D. Univ. Dublin, F.R.C.P., Farnham House, Finglas, Co. Dublin.

1899 DEMPSEY, ALEX., M.D., Q.U.I., Physician Mater Infirmorum Hospital, 36 Clifton-street, Belfast

1891 DEMPSEY, MARTIN J. P., M.D. R.U.I., F.R.C.P., Professor of Materia Medica and Therapeutics Catholic University, Physician to Mater Misericordiæ Hospital, 35 Merrion-square, Dublin. [1]

1900 DEMPSEY, PATK. J., F.R.C.S., Throat Surgeon Mater Misericordiæ Hospital, 7 Merrion-square, Dublin.

1897 DIXON, A. FRANCIS, M.B. Dub., Professor of Anatomy Trin. Coll. Dublin, 35 Palmerston-road. [1]

1905 DONNELLY, THOMAS, M.D., F.R.C.S., Medical Officer No. 1 Dispensary District, North Dublin Union, 14 Rutland-square. [1]

1895 DRURY, H. C., M.D., Univ. Dub., F.R.C.P., Physician Sir P. Dun's Hospital, 48 Fitzwilliam-square, Dublin.

1893 DUNNE, FRANK J., M.B., R.U.I., Physician South Dublin Union, 94 Leeson-street. [1]

1885 DWYER, F. CONWAY, M.D., F.R.C.S., Surgeon Meath Hospital, Professor of Surgery Royal College of Surgeons, 9 Rutland-square, Dublin.

1889 EARL, HENRY CECIL, M.D., F.R.C.P., Pathologist Richmond, Whitworth, and Hardwicke Hospitals, 2 Waterloo-road, Dublin.

1883 EVANS, WILLIAM R., M.D., L.R.C.S., Physician Orthopædic Hospital, 19 Merrion-square, N., Dublin.

1887 FALKINER, NINIAN M'INTIRE, M.D., F.R.C.P., Medical Superintendent of Statistics, Registrar-General's Office, 36 Molesworth-street, Dublin.

1900 FANNIN, EDWARD M., M.B., B.Ch. Dubl., Assistant Physician, Drumcondra Hospital, 3 Rutland-square.

Digitized by Google

1904 FARNAN, DENIS J., M.B., R.U.I. (Physician Children's Hospital, Temple Street), 25 Westland-row.

1904 FARNAN, R. P., M.B., R.U.I., Gynæcologist Mater Misericordiæ Hospital, 5 Merrion-square.

1888 FERGUSON, HENRY LINDO, M.D., F.R.C.S., Dunedin, New Zealand.

† FINNY, JOHN MAGEE, M.D., Physician Sir P. Dun's Hospital, King's Professor of Practice of Medicine, School of Physic, Ex-President R.C.P., 36 Merrion-square, Dublin. [1]

1902 FITZGERALD, GORDON WM., M.D., Ex-Assistant Master Rotunda, 335 Oxford-road, Manchester.

† FITZGERALD, CHARLES E., M.D., F.R.C.P., Surgeon-Oculist-in-Ordinary to the King in Ireland, 27 Upper Merrion-street, Dublin.

1891 FITZGERALD, FRANCIS CREIGHTON, L.R.C.P., L.R.C.S., Medical Officer Dispensary District, Newtownbutler, Co. Fermanagh.

1902 FITZGIBBON, GIBBON, M.D., Ex-Assistant Master Rotunda Hospital, 11 Lower Fitzwilliam-street.

† FITZGIBBON, HENRY, F.R.C.S., Ex-President Royal College of Surgeons, late Surgeon City of Dublin Hospital, 24 Fitzwilliam-place, Dublin.

1884 FLEMING, ROBERT H., M.B., Gynæcologist Royal City of Dublin Hospital, 30 Lower Baggot-street, Dublin.

1891 FLYNN, ROBERT ALEXANDER, F.R.C.P., Gynæcologist Drumcondra Hospital, 55 Merrion-square, Dublin.

1886 FOTTRELL, WM. JOSEPH, L.R.C.S., Medical Officer North Dublin Union Workhouse, 2 Rutland-square, Dublin.

† FRANKS, Sir KENDAL, C.B., M.D., F.R.C.S., late Surgeon to Adelaide Hospital and to Throat and Ear Hospital, Dublin, Kilmurry, Johannesburg, South Africa.

1887 FRASER, ALEC, M.B., F.R.C.S., Professor of Anatomy Royal College of Surgeons, Ireland, 18 Northbrook-road, Leeson-park. [3]

1906 GIBSON, M.J., M.D., Univ. Dub. (Supernumerary Assistant Master Coombe Hospital), 115 Stephen's-green. [1]

1891 GLENN, JOHN HUGH ROBERT, M.D., F.R.C.P., Gynæcologist Mercer's Hospital, 24 Lower Baggot-street, Dublin.

1898 GOLDIE, GEORGE J., L.R.C.P. & S. Edin., L.F.P. & S. Glasgow, L.D.S. Edin., 95 Merrion-square.

1893 GORDON, THOMAS EAGLESON, M.B., F.R.C.S., Surgeon Adelaide Hospital, 8 Fitzwilliam-square, Dublin. [1]

1902 GUNN, L. G., M.D., Dub., F.R.C.S., Assistant Surgeon Adelaide Hospital, 43 Fitzwilliam-square. [2]

Digitized by Google

1892 HAMILTON, WM. COPE, L.R.C.P. & S., late Resident Surgeon Steevens' Hospital, 120 St. Stephen's-green, W., Dublin.

1899 HAUGHTON, W. S., M.D., Surgeon to Steevens' Hospital, 30 Lower Fitzwilliam-street. [1]

1906 HARVEY, W. G., M.B., Bch. Univ. Dub., Pathologist and X Rayist, Adelaide Hospital, 62 Lower Baggot-street. [1]

† HAYES, RICHARD ATKINSON, M.D., F.R.C.S., Physician Steevens' Hospital, Physician for Diseases of Throat Royal Victoria Eye and Ear Hospital, 82 Merrion-square, S., Dublin.

1904 HOLMES, ARTHUR N., M.B., Univ. Dub., Assistant Master Rotunda Hospital.

† HORNE, ANDREW JOHN, F.R.C.P., Master National Lying-in Hospital, 94 Merrion-square, W., Dublin.

1905 HORT, EDWARD C., L.S.A., L.R.C.P.I., M.R.C.P., Ed., late Consulting Physician Cosmopolitan Hospital, Venice, Ardmore, Torquay.

1905 HUDSON, A. AINSLIE, M.D., F.R.C.S. Ed., Resident Physician St. Ann's Hill Hydropathic, Co. Cork.

1883 JACOB, DAVID BALDWIN, M.D., F.R.C.S., Surgeon Queen's County Infirmary, Visiting Physician Maryborough District Lunatic Asylum, Surgeon Queen's County Prison, Port Leix, Maryborough, Queen's Co.

1890 JELLETT, HENRY, M.D., F.R.C.P.I., Gynæcologist Steevens' Hospital, 61 Lower Mount-street. [1]

1885 JENINGS, ULICK A., M.D., Lieut.-Col., M.S., Retired, Military Prison Rockspring House, Cork.

1897 JOHNSTON, G. JAMESON, M.B., R.U.I., F.R.C.S., Surgeon Royal City of Dublin Hospital, 13 Lower Fitzwilliam-street.

1905 JOHNSTON, HENRY M., M.B., B.Ch., Univ. Dub., Chief Demonstrator of Anatomy T.C.D., School of Anatomy, Trinity College. [1]

1893 JOYNT, RICHARD LANE, M.D. Univ. Dub., F.R.C.S., Surgeon Meath Hospital, 84 Harcourt-street, Dublin.

1905 KEEGAN, JOHN LEO, F.R.C.S., Surgeon Jervis-street Hospital, 2 Pembroke-road. [1]

1899 KENNEDY DENIS, F.R.C.S., Surgeon Jervis-street Hospital and Children's Hospital, Temple-street, 20 Harcourt-street.

1884 KIDD, FRED. W., M.D., Professor of Midwifery, R.C.S., ex-Master Coombe Hospital, Gynæcologist Meath Hospital, 17 Lower Fitzwilliam-street, Dublin.

† KINKEAD, RICHARD JOHN, M.D., L.R.C.S., Lecturer on Medical Jurisprudence, Professor of Obstetric Medicine Queen's College, Galway, Foster House, Galway. [1]

Digitized by Google

1899 KIRKPATRICK, T. PERCY C., M.D., Dub., F.R.C.P.I., Physician to Steevens' Hospital, 23 Lower Baggot-street.

1901 LAW, S. HORACE, M.D., F.R.C.S., Throat Surgeon Adelaide Hospital, Surgeon Dublin Throat and Ear Hospital, 49 Merrion-square. [1]

1884 LEDWICH, EDWARD L'E., L.R.C.P. & S.I., Physician to Mercer's Hospital, 30 Upper Fitzwilliam-street, Dublin.

1900 LEEPER, RICHARD R., F.R.C.S., St. Patrick's Hospital, Dublin.

1891 LENNON, EDWARD EMMANUEL, F.R.C.P., Physician Meath Hospital, 22 Merrion-square, Dublin.

† LENTAIGNE, JOHN, F.R.C.S., Surgeon Mater Misericordiæ Hospital, 42 Merrion-street, Dublin.

1897 LETTERS, PATRICK, M.D., Valentia Island.

1898 LINDSAY, JAMES A., M.D., F.R.C.P. London, Professor of Practice of Medicine Q.C.B., Physician Royal Victoria Hospital, Belfast, 13 College-square, E., Belfast. [1]

† LITTLE, JAMES, M.D., ex-President R.C.P., Regius Professor of Physic Univ. Dub., 14 St. Stephen's-green North, Dublin. [1]

1897 LUMSDEN, JOHN, M.D., Physician to Mercer's Hospital, 4 Fitzwilliam-place.

† MACAN, SIR ARTHUR V., M.B., ex-President R.C.P., King's Professor of Midwifery T.C.D., 53 Merrion-square, Dublin.

† M'ARDLE, JOHN STEPHEN, F.R.C.S., Surgeon St. Vincent's Hospital and the Mullen Convalescent Home, 72 Merrion-square, Dublin.

1887 M'CAUSLAND, RICHARD BOLTON, F.R.C.S., Surgeon Steevens' Hospital, 79 Merrion-square, Dublin.

1904 MACGRATH, JAMES JOSEPH, L.R.C.P., St. Helens, Dunfanaghy, Co. Donegal.

1895 M'HUGH, MICHAEL, M.A., M.D., Univ. Dub., L.R.C.S., Professor of Materia Medica R.C.S., Physician St. Vincent's Hospital, 25 Harcourt-street, Dublin.

1902 M'KISACK, H. L., M.D., Physician Royal Victoria Hospital, 17 University square, Belfast.

1905 M'LOUGHLIN, E. P., M.D., R.U.I., Professor of Anatomy Catholic University Medical School, Cecilia-street, Dublin.

1903 MCVITTIE, R. B., M.D., 62 Fitzwilliam-square.

1887 MCWEENEY, E. J., M.D., F.R.C.P.I., Pathologist Mater Misericordiæ Hospital, 84 St. Stephen's-green, Dublin. [2]

1900 MAGUIRE, KATHARINE M. N., M.D., 67 Merrion-square, South.

Digitized by Google

1883 MARQUES, L. PEREIRA, M.R.C.P., L.R.C.S., late Medical Officer Victoria Gaol Hospital, Macao, China.

1896 MARTLEY, FRANCIS C., M.A., M.D., Camb., F.R.C.P.I., M.R.C.S. Eng. and L.R.C.P. Lon., late House Physician St. Mary's Hospital, 71 Lower Baggot-street, Dublin.

1904 MATSON, JOHN A., F.R.C.P.I., Assist. Phys. Richmond, Whitworth, and Hardwicke Hospitals, 16 North Great George's-street.

1897 MAUNSELL, R. CHARLES B., M.B., B.Ch., B.A.O., Dub., F.R.C.S.I. Surgeon to Mercer's Hospital, 32 Lower Baggot-street.

1902 MELDON, G. PUGIN, M.D., F.R.C.S., Surgeon Westmoreland Lock Hospital, 69 Lower Baggot-street.

1904 MILLS, JOHN, M.B., B.S., R.U.I., District Asylum, Ballinasloe.

1901 MITCHELL, A. B., F.R.C.S., Surgeon Royal Victoria Hospital, 4 College-square, Belfast. [1]

1894 MONTGOMERY, ROBERT JOHN, M.A., M.B. Univ. Dub., F.R.C.S., Ophthalmic Surgeon Drumcondra Hospital, Assistant Surgeon Royal Victoria Eye and Ear Hospital, 28 Upper Fitzwilliam-street, Dublin.

1897 MOONEY, H. C., M.B., F.R.C.S., Ophthalmic Surgeon Children's Hospital, Temple-street; Assistant Surgeon Royal Victoria Eye and Ear Hospital, 22 Lower Baggot-street.

1894 MOORE, HENRY, L.R.C.P. & S., Surgeon Royal City of Dublin Hospital, 19 Upper Fitzwilliam-street.

† MOORE, SIR JOHN WILLIAM, M.D., D.Sc. Oxon., ex-President R.C.P., Physician Meath Hospital, Professor of Practice of Medicine Royal College of Surgeons, 40 Fitzwilliam-square, West, Dublin.

1901 MOORHEAD, GEORGE, F.R.C.S., Tullamore.

1904 MOORHEAD, T. GILLMAN, M.D., M.R.C.P., Physician City of Dublin Hospital, 12 Lower Fitzwilliam-street. [2]

1883 MURPHY, JOHN, F.R.C.P., Physician Mater Misericordiæ Hospital, 13 Merrion-square, Dublin.

† MURPHY, JOHN JOSEPH, L.R.C.P. Ed., 18 Harcourt-street, Dublin.

1904 MURPHY, W. L., B.A., Cantab., L.R.C.P. & S.I., Mater Misericordiæ Hospital, Dartry, Upper Rathmines.

1886 MYLES, SIR T., ex-President R.C.S., Surgeon Richmond Hospital, 33 Merrion-square, Dublin. [1]

† NIXON, SIR CHRISTOPHER, Bart., M.D., ex-President R.C.P., Physician to Mater Misericordiæ Hospital, 2 Merrion-square, N., Dublin.

Digitized by Google

1889 NOLAN, MICHAEL JAMES, L.R.C.P., L.R.C.S., Resident Medical Superintendent Down District Lunatic Asylum, Downpatrick.

1885 NORMAN, CONOLLY, F.R.C.P., Medical Superintendent Richmond District Lunatic Asylum, Dublin.

1899 O'BRIEN, C. M., M.D., L.R.C.P. & S., Physician to City Hospital for Diseases of the Skin, 29 Merrion-square.

† O'CARROLL, JOSEPH FRANCIS, M.D., F.R.C.P., Physician Richmond, Whitworth, and Hardwicke Hospitals, 43 Merrion-square, Dublin [1]

1906 O'FARRELL, THOMAS T., L.R.C.P. & S.I., 44 Waterloo-road.

1883 OLPHERTS, J. WYBRANTS, M.D., Medical Officer Downpatrick Dispensary District, The Villas, Downpatrick.

† ORMSBY, SIR LAMBERT HEPENSTAL, M.D., ex-President R.C.S., Surgeon Meath Hospital, Surgeon National Children's Hospital, 92 Merrion-square, West, Dublin.

1894 O'SULLIVAN, A. C., M.D., F.T.C.D., F.R.C.P.I., Lecturer on Pathology Trinity College, 43 Ailesbury-road, Dublin.

† OULTON, HENRY W., M.D. Dub., F.R.C.S.I., Chief Surgeon Dublin Metropolitan Police, 17 Upper Fitzwilliam-street, Dublin.

1893 PARSONS, ALFRED ROBERT, M.D., Univ. Dub., F.R.C.P., Physician Royal City of Dublin Hospital, 27 Lower Fitzwilliam-street, Dublin. [3]

1900 PATTEN, CHARLES J., M.D., D.Sc., B.Ch. Dub., The University, Sheffield.

1895 PEACOCKE, GEO. J., M.D., F.R.C.P.I., Assistant Physician Adelaide Hospital, 2 Fitzwilliam-square. [2]

1903 PEACOCKE, REGINALD C., M.D. Dub., Medical Officer G. P.O., Blackrock District, 2 Ovoca-terrace, Blackrock.

1887 PEARSON, CHARLES YELVERTON, M.D., F.R.C.S. Eng., Professor of Surgery, Queen's College, 1 Sydney-place, Cork. [1]

† PECHEY-PHIPSON, MARY EDITH, M.D., L.R.C.P., 13 Albemarle-street, London, W.

1901 PENNY, ALFRED FERGUSON, L.R.C.P. & S., Hon. Visiting Physician Chelsea Prov. Dispensary, 10 Oakley-street, Chelsea.

† POLLOCK, JAMES FERRIER, M.D., F.R.C.P., Medical Officer Meath Industrial Schools, Avoca House, Blackrock.

1904 PRINGLE, SETON, M.B., Univ. Dub., F.R.C.S.I., Surgeon Mercer's Hospital, 27 Lower Baggot-street. [1]

1895 PRICE, ARTHUR GEORGE, M.B., B.Ch. Univ. Dub., Greystones.

Digitized by Google

† PUREFOY, RICHARD DANCER, F.R.C.S., Ex-Master Rotunda Hospital, 62 Merrion-square, Dublin.

1902 PURSER, FRANK C., M.D., F.R.C.P., Assistant Physician Richmond, Whitworth, and Hardwicke Hospitals, 20 Lower Baggot-street.

† REDMOND, JOSEPH MICHAEL, M.D., P.R.C.P., Physician to Mater Misericordiæ Hospital, 41 Merrion-square, Dublin.

1891 ROCHE, ANTHONY, M.R.C.P., L.R.C.S., Professor of Medical Jurisprudence and Public Health Catholic University Medical School, 60 Lower Baggot-street.

1905 ROWLETTE, ROBERT J., M.D., Pathologist Rotunda Hospital, 42 Lower Baggot-street, Dublin. [2]

1892 RUTHERFORD, WILLIAM, M.D., F.R.C.P.Ed., Visiting Physician District Asylum, Ballinasloe.

1900 SCOTT, C. BURNETT, M.D., 35 Clarinda-park, Kingstown.

† SCOTT, JOHN ALFRED, M.D., F.R.C.S., Professor of Physiology Royal College of Surgeons, 36 Lower Baggot-street, Dublin.

1906 SHEILL, J. SPENCER, L.R.C.P. & S.I., M.R.C.P.I., 27 Harcourt-street, Dublin

1900 SINCLAIR, F. HOWARD, M.D., Cooleen, Warrenpoint.

1886 SMITH, ALFRED J., M.B., F.R.C.S., Gynæcologist St. Vincent's Hospital, 30 Merrion-square, Dublin.

1895 SMITH, R. TRAVERS, M.D., F.R.C.P.I., Physician Richmond, Whitworth and Hardwicke Hospitals, 20 Lower Fitzwilliam-street. [1]

1901 SMITH, TREVOR N., F.R.C.S., late Assistant Master Coombe Hospital, 34 Upper Fitzwilliam-street.

† SMITH, WALTER GEORGE, M.D., Ex-President R.C.P., King's Professor of Materia Medica School of Physic, and Physician to Sir Patrick Dun's Hospital, 25 Merrion-square, Dublin.

1905 SMYTH, JOSHUA CHARLES, M.R.C.S. Eng., L.R.C.P. Lond., Resident Physician Altadore Sanatorium, Kilpedder, Co. Wicklow.

† SMYLY, SIR WILLIAM J., M.D., President R.C.P., late Master Rotunda Lying-in Hospital, 58 Merrion-square, S., Dublin.

1905 STEVENSON, WALTER C., M.B., B.Ch., B.A.O., Assistant Surgeon Dr. Steevens' Hospital, 21 Upper Fitzwilliam-street.

† STOKER, SIR THORNLEY, M.D., ex-President R.C.S., Surgeon Richmond Hospital, Surgeon Swift's Hospital for Lunatics, 8 Ely-place, Dublin.

1902 STOKER, GRAVES, F.R.C.S., Surgeon Drumcondra Hospital, 46 Rutland-square.

Digitized by Google

† STORY, JOHN BENJAMIN, M.B., F.R.C.S., Surgeon Royal Victoria Eye and Ear Hospital, Ophthalmic and Aural Surgeon Steevens' Hospital, Professor of Ophthalmic and Aural Surgery R.C.S., 6 Merrion-square, N., Dublin.

1900 STRAHAN, MICHAEL, L.R.C.S., Medical Officer No. 2 North City Dispensary District, 38 Rutland-square, Dublin.

1902 STRITCH, GEO. S. RUSSELL, L.R.C.P. & S. Ed., L.F.P. & S. Gl., Medical Officer Westmoreland Lock Hospital, 17 North Great George's-street. [1]

† SWANZY, HENRY ROSBOROUGH, M.D., Dub., hon. causâ, F.R.C.S., Surgeon Royal Victoria Eye and Ear Hospital, Dublin, Ophthalmic Surgeon Adelaide Hospital, 23 Merrion-square, North, Dublin.

1893 SYMES, WM. LANGFORD, F.R.C.P., M.D., Assistant Physician Dublin Orthopædic Hospital, Physician Homes for Destitute Children, 74 Merrion-square, S., Dublin.

1893 SYMINGTON, JOHNSON, M.D. Edin., Professor of Anatomy Queen's Coll., Belfast. [2]

1895 TAYLOR, EDWARD HENRY, M.D., Dub., F.R.C.S., Surgeon Sir Patrick Dun's Hospital, 77 Merrion-square, Dublin.

1898 TAYLOR, WILLIAM, M.B., F.R.C.S., Surgeon Meath Hospital, 47 Fitzwilliam-square. [1]

1897 THOMPSON, W. H., M.D., F.R.C.S. Eng., Kings Professor of Institutes of Medicine, Trinity College, Dublin.

1894 THOMPSON, W. J., M.D., Univ. Dub., Physician Jervis-street Hospital.

† THOMSON, SIR WILLIAM, C.B., ex-President R.C.S., Surgeon Richmond Hospital, 54 St. Stephen's-green, E., Dublin.

† TOBIN, RICHARD FRANCIS, F.R.C.S., Surgeon St. Vincent's Hospital, 60 St. Stephen's-green, Dublin.

1889 TODD, H. ROSS, F.R.C.S., Ipsden, Wallingford, Berks.

1893 TWEEDY, ERNEST HASTINGS, F.R.C.P., Master Rotunda Hospital. [2]

1900 TWEEDY, HERBERT, L.R.C.P. & S., Colonial Surgeon.

1901 WATSON, EDWARD J., M.D., F.R.C.P., Anæsthetist and Medical Officer in Charge of the X-ray Department Sir P. Dun's Hospital, Demonstrator in Anatomy T.C.D., 25 Fitzwilliam-place.

1902 WAYLAND, R. S., F.R.C.S., Physician National Children's Hospital, 67 Harcourt-street.

1901 WESTROPP, H. G., L.R.C.P. & S., Visiting Surgeon Home of Rest, Merrion, 115 Strand-road, Sandymount.

Digitized by Google

1904 WHEELER, W. I. de C., M.D., B.Ch., B.A.O. Dub., F.R.C.S., Surgeon Mercer's Hospital, 59 Lower Mount-street. [1]

1900 WHITE, ARTHUR H., L.R.C.P. & S.I., Professor of Pathology Royal College of Surgeons, Pathologist Meath Hospital and Cork-street Hospital. [1]

1903 WIGHAM, JOSEPH T., M.D., Assistant to Professor of Pathology T.C.D., Albany House, Monkstown, Co. Dublin.

1898 WIGODER, SELIK, M.D., Leipzig, L.R.C.P. & S. Edin., 5 Harrington-street.

1894 WILSON, T. HENRY, F.R.C.P., late Assistant Master Rotunda Lying-in Hospital, Gynæcologist Richmond, Whitworth, and Hardwicke Hospital, 33 Upper Merrion-street, Dublin.

1898 WINTER, W. A., M.D., Dub., F.R.C.P.I., Assistant Physician Steevens' Hospital, 2 Upper Leeson-street.

1905 WOODS, CHARLES R., Colonel R.A.M.C., M.D., Dub., Temporary Fellow, Royal Hospital.

1893 WOODS, ROBERT H., M.B. Univ. Dub., F.R.C.S., Throat Surgeon Richmond Hospital, 39 Merrion-square, Dublin. [1]

1894 WYNNE, ALBERT E., L.R.C.P. & S. Edin., F.R.C.S., late House Surgeon Mercer's Hospital, 27 Westland-row, Dublin.

1884 YOURELL, M. J., M.R.C.P., 10 Ailesbury-road, Merrion.

Digitized by Google

MEMBERS.

† Boyce, Jos. W., M.B., Medical Officer Blackrock Dispensary District, St. Kilda, Blackrock, Co. Dublin.

1904 Boxwell, William, M.B., Dub., Clinical Assistant Meath Hospital, 77 Harcourt-street, Dublin.

1903 Charles, Andrew, L.R.C.P. & S., 64 Harcourt-street.

1887 Cope, Geo. Patrick, L.R.C.P., L.R.C.S., Medical Officer No. 3 Dispensary District, South Dublin Union, 86 Harcourt-street.

1900 Cullinan, Henry, L.R.C.P. & S., Senior Assistant Medical Officer Richmond Asylum.

1905 Davis, J. H., L.R.C.P. & S.I., Visiting Physician Children's Hospital, Temple-street, 26 Westland-row.

1892 Day, J. Marshall, M.B., Univ. Dublin, Resident Medical Officer Cork-street Fever Hospital, Dublin.

† Delahoyde, O'Connell J., F.R.C.S., Medical Officer No. 2 District North Dublin Union, 47 Rutland-square, Dublin.

1894 Eustace, H. M., M.D., Resident Medical Superintendent Hampstead and Highfield Private Lunatic Asylums, Glasnevin.

1897 Fleury, Eleonore Lilian, M.D., R.U.I., Richmond District Asylum, Dublin.

1903 Glenny, Edmund, F.R.C.S., 14 Harrington-street.

1900 Goff, A. S., L.R.C.P. & S., Lynton, Dundrum.

1889 Goulding, H. Benson, F.R.C.S., 16 Rathmines-road.

1906 Greer, J. Stirling, Tempé-terrace, Dalkey.

1898 Hatch, Richard, L.R.C.P. & S., 166 Pembroke-road.

1897 Hughes, Charles, L.R.C.P. & S., 16 Lower Fitzwilliam-street.

1903 Lynn, Kathleen F., M.B., B.Ch., B.A.O., 9 Belgrave-road, Rathmines.

1902 Neill, Thomas, M.B., B.Ch. Dub., Ex-Assist. Master Coombe Hospital, 69 Harcourt-street.

Digitized by Google

1905 PASLEY CLAUDE B., L.R.C.P. & S.I., 66 Dalymount, N.C.R.

1898 REDINGTON, JOHN, F.R.C.S., Assistant Medical Officer Richmond District Asylum.

1885 SHAW, JAMES, L.R.C.S., 93 Talbot-street, Dublin.

1904 STOKES, HENRY, M.B., Dub., Clinical Assistant Meath Hospital, 26 Harcourt-street.

1904 STONEY, R. ATKINSON, M.B., B.Ch., F.R.C.S., Surgeon Royal City of Dublin Hospital, 115 Lower Baggot-street.

1902 WALSH, JAMES A., L.R.C.P. & S. Edin., 30 Westmoreland-street.

1905 WINDER, FRANCIS A., M.B. Univ. Dub., Glasnevin, Co. Dublin.

STUDENT ASSOCIATES.

CUSSEN, M. E., 26 Avoca Terrace, Phibsborough.

WALLACE, E. C., 33 Charleville-road, N.C.R.

WOOLLCOMBE, ROBERT LLOYD, LL.D., 14 Waterloo-road, Dublin.

Digitized by Google

Digitized by Google

RULES.

1. The name shall be, "ROYAL ACADEMY OF MEDICINE IN IRELAND." (1887.)

Constitution.

2. The Academy shall consist of Fellows, Honorary Fellows, Members, and Student Associates.

Management.

3. The affairs shall be managed by a Council, consisting of the President, Ex-Presidents (1898), Ex-General Secretaries (1905), the six Presidents of Sections, the General Secretary and Treasurer, the Secretary for Foreign Correspondence, six Secretaries of Sections, and eight Councillors, being two representatives from the Medical, Surgical, Obstetrical, and Pathological Sectional Councils respectively.

Meetings.

4. The Meetings shall be General and Ordinary.

Publication of "Transactions."

5. The "Transactions" shall be published by the Council, subject to the provisions hereinafter contained.

Original Fellows and Members.

6. All the Members of the present Societies (Medical, Surgical, Obstetrical, and Pathological) shall be Original Fellows or Members, without entrance fee, on payment of the annual subscription on or before 31st December, 1882.[a]

Fellows.

7. Fellows of the Royal College of Physicians of Ireland, and of the Royal College of Surgeons in Ireland, shall be admitted, without ballot, on payment of the entrance fee and the subscription for the current year. All others, being Registered Medical Practitioners not directly or indirectly engaged in the sale of drugs, shall be proposed by two Fellows, and elected by ballot by the Council.

8. Candidates shall be proposed at one Meeting of the Council, and balloted for at the next—one black bean in four to reject.

8A. That all Rules referring to the admission of Fellows, Members, and Student Associates shall be interpreted as referring to Ladies as well as Gentlemen.

Privileges of Fellows.

9. Fellows only shall be eligible for office in the Academy. They shall have the privilege of attending all Meetings of the Academy, of making Communications, and of voting and speaking at such meetings. They shall also receive a copy of the "Transactions."

[a] Those who have paid a Life Subscription to any of the above Societies will be admitted to the privilege of Fellows on payment of Member's subscription

Digitized by Google

10. These privileges shall not be exercised by any Fellow in arrear with his subscription.

Honorary Fellows.

11. Honorary Fellows, limited in number to 25, may be nominated by the Council, and elected, on motion at a General Meeting of the Academy by a majority of at least two-thirds of those present and voting.

Members.

12. Any Registered Medical Practitioner may be elected as a Member, the election to be conducted in the same manner as that of Fellows.

Privileges of Members.

13. Members shall have the privilege of attending the Ordinary Meetings of the Academy, of making Communications, and of taking part in debate. They can purchase the "Transactions" at cost price.

Student Associates.

14. Registered Medical Students may be elected Student Associates for the period of one year. The Subscription must be paid before election, and the Council may elect without notice of motion.

15. Student Associates shall have the privilege of attending the Ordinary Meetings of the Academy.

Annual Subscription.

16. Fellows shall pay £2 2s., and Members £1 1s. Student Associates shall pay 5s. The Subscription shall become due on the 1st of October in each year, and if the Subscription be not paid on or before the first Meeting in February, the defaulter shall cease to belong to the Academy, unless the delay shall be accounted for to the satisfaction of the Council. No Fellow shall vote at the Annual General Meeting who has not paid his subscription for the year. Registered Medical Practitioners not residing within 15 miles of Dublin are eligible as Fellows of the Academy on payment of the entrance fee, and an annual Subscription of £1 1s. Medical Officers on the active list of the Royal Navy and Army are eligible for election as "Temporary Fellows" of the Academy on payment of an annual Subscription of One Guinea. Such Temporary Fellows shall enjoy all the privileges of Fellows, except that of voting at General Meetings. No Fellow who has not paid his Subscription shall vote for any Candidate for Office at the Annual General Meeting, nor can the name of any Fellow be received by the General Secretary for insertion on the ballot paper as a Candidate for Office unless his Subscription shall have been paid for the current year.

Entrance Fee.

17. After admission of Original Fellows, all Fellows shall pay an entrance fee of £1 1s.

Council.

18. The Council shall meet on the last Friday in the month throughout the Session, or oftener should they see occasion—five to form a quorum.

Digitized by Google

19. Notice of all Extraordinary Meetings shall be transmitted by the Secretary to every Member of the Council. The President or any five Members of Council may call an Extraordinary Meeting of the Council. The Council shall determine questions by vote, or by division if so demanded, the President having a casting vote only. Any regulation of the Council shall have the force of a law, until submitted to the next General Meeting. The Council shall have the power of filling up any vacancies which may occur in the list of Officers of the Academy, except that of President, before the Annual General Meeting. If a vacancy in the office of President should occur, the General Council shall summon a Special General Meeting of the Academy to fill such vacancy. (1888.)

Sectional Councils.

20. There shall be six Sectional Councils elected by the Annual General Meeting in October, termed respectively—the Medical, the Surgical, the Obstetrical, the Pathological, the State Medicine, and the Anatomical and Physiological Councils.

21. No Fellow shall be eligible as a candidate for election on more than two Sectional Councils, but no Fellow shall be eligible as a candidate for election on both the Medical and Surgical Sectional Councils. (1888.)

22. Each Sectional Council shall consist of the President of the Section and ten Members, one of whom shall act as Secretary to the Section ; except the State Medicine and Anatomical and Physiological Councils, which shall each consist of a President and six Members. (1888.)

Meetings of Sectional Councils.

23. Each Sectional Council shall meet on a fixed day at least one week before the Ordinary Meeting of their Section, three to form a quorum.

Powers.

24. Each Sectional Council shall have the power of making any such arrangements as it thinks necessary to carry on the work of the Ordinary Meetings which are under its charge, provided that such arrangements do not interfere with the general laws of the Academy ; and any Rules laid down by such Council shall have the force of laws at the Ordinary Meetings under its charge until submitted to the General Council.

25. Each Sectional Council shall have the power of filling up any vacancies that may occur among its Members until the Annual General Meeting.

Committee of Reference.

26. The Council shall appoint a Committee of Reference to report upon morbid growths and other specimens exhibited before the Academy ; of this Committee the Exhibitor shall, for the occasion, be a Member.

Officers.

27. A President, to be elected by the Annual General Meeting in October, and to hold office for three years.

28. The Presidents of the Colleges of Physicians and Surgeons for the time being shall be the Presidents of the Medical and Surgical Sections. The Presidents of the other Sections shall be elected by the Fellows at the Annual General Meeting, and shall hold office for two years. (1888.)

Digitized by Google

29. One General Secretary and Treasurer to be elected at the Annual General Meeting.

30. It is expedient that a fixed salary (of one hundred guineas) shall be paid yearly to the General Secretary in consideration of the fact that the editing of the "Transactions" is part of his duties.

31. One Honorary Secretary for Foreign Correspondence to be elected at the Annual General Meeting. (1888.)

32. The Councillors for each Section to be elected at the Annual General Meeting. Each Sectional Council shall elect two Members to act on the General Council, except in the case of the Sections of State Medicine and Anatomy and Physiology. (1888.)

33. Two Members in each Sectional Council shall retire annually, and be ineligible for re-election for one year, except in the Council of the Section of Anatomy and Physiology, in which only one shall retire. (1896.)

34. Six Secretaries, one for each Section, to be appointed by the Sectional Councils.

35. At all elections after the year 1882, any Fellow desirous of nominating a candidate for election shall, at least ten days before the Annual General Meeting, forward an application to the General Secretary to enter the name of such Fellow on the list of candidates for office, provided that the Fellow so nominated shall have consented to act, and shall have paid his subscription at the time of nomination. Should there be an insufficiency of regularly nominated candidates, the vacancies so created shall be filled up by the Sectional Councils at their first meeting after election. (1891 and 1904.)

36. That all elections shall be by ballot, but Fellows residing more than 15 miles from Dublin, and those incapacitated by illness (to be certified), may record their votes by ballot papers, sent to the presiding officer in sealed envelopes provided for that purpose. A Fellow cannot avail himself of this privilege unless his subscription for the current session has been paid. (1896 and 1904.)

37. That in all elections to the Sectional Councils there shall be affixed to the name of each candidate the number of meetings that he has attended of that particular Section of the Council for which he is now a candidate. (1898.)

Duties of Officers.

38. *The President* shall preside at the Annual and Special General Meetings and at General Council Meetings. In the absence of the President, the Chairman shall be appointed by the meeting. (1888.)

39. *The Presidents of Sections* shall preside at the Ordinary Meetings of the Academy, and shall also preside at the Sectional Council Meetings. In the absence of the President, the Chairman shall be appointed by the meeting. (1888.)

40. *The General Secretary* shall attend all General Meetings of the Academy and General Council. He shall take minutes of such meetings, to be read at the following meeting.

41. He shall receive and have charge of all papers intended for publication in the "Transactions" of the Academy, after they have been handed over to him by the Secretaries of the several Sections.

Digitized by Google

42. He shall, on receiving notice from the Secretary of a Section, send out to all the Members notices of the title or titles of the paper or papers for the next Ordinary Meeting, with the name or names of the authors, and, so far as possible, of the subjects for Exhibition, with the names of the Exhibitors.

43. He shall arrange for the Exhibition of specimens and the reading of papers, which are to be forwarded to the Academy by those who are absent, or are not members.

44. The General Secretary and Treasurer shall receive all moneys, and lodge the same in bank to the account of the Academy, and all cheques shall be signed by the Treasurer and one other Councillor.

45. The Accounts shall be audited by two Fellows, not Members of Council, to be appointed by the President at some meeting previous to the Annual Meeting.

Duties of Secretaries of Sections.

46. To attend the Meetings of the Council of the Section and the Ordinary Meetings of the Academy, under the management of said Council, and to take minutes at such meetings, to be read at the next following meeting of that Section.

47. To keep such papers as the Sectional Councils recommend for publication, for the purpose of handing them over to the General Secretary.

48. To inform the Secretary of the Committee of Reference of any specimens referred to that Committee, and to transfer the specimens to that Secretary.

49. To give notice to the General Secretary, one week previously to the meeting, of the titles of papers for the evening, the names of the authors, and, so far as possible, the objects for Exhibition, with the names of Exhibitors, so that the General Secretary may inform the Members.

Meetings.

50. The Annual General Meeting to take place on the second Friday in October, for the election of Officers and Members of Council, and for the general business of the Academy.

51. Due notice of the meeting shall be given by the Secretary to all Members at least three weeks previously. (1891.)

52. No motion involving a change of these Rules shall be brought before this meeting except one week's notice thereof shall have been given by the Secretary to each Member.

53. The President may—and shall forthwith, on receiving a requisition signed by seven Fellows, at any time—on giving one week's notice, summon a Special General Meeting, for the consideration of particular business, the nature of which must be specified in the letter of summons convening the meeting, and at such meeting no other business can be transacted. In the event of the President being unable, from any cause, or declining, to summon a Special General Meeting of the Academy, it shall be in the power of the General Council to summon such meeting. (1888.)

Digitized by Google

Ordinary Meetings.

54. The communications to be submitted to the Ordinary Meetings shall be grouped under the following heads :—Medicine, Surgery, Pathology, Obstetrics, State Medicine, and Anatomy and Physiology ; and the conduct of such meetings shall be in the hands of the several Sectional Councils, each Sectional Council to have the management of the Ordinary Meeting in rotation, as arranged by the General Council. (1888.)

55. The Ordinary Meetings shall be held on every Friday evening, from the last Friday in October until the last Friday in May, inclusive, at eight o'clock, except during the Christmas and Easter recesses.

56. All Fellows, Members, and Student Associates attending the meetings shall write their names in the attendance book.

57. Any Fellow or Member may introduce two Visitors by cards obtained from the Sectional Secretaries.

58. Officers of the Army or Navy Medical Departments shall, on presenting their cards, be admitted to the Ordinary Meetings of the Academy.

59. No communication shall exceed twenty minutes in its delivery, nor any speech thereon ten minutes, except by permission of the Chairman. No one shall speak twice upon the same communication, except the author, who has the right of reply.

60. A paper by any other than a Fellow or Member of the Academy shall not be read before the Academy unless the author of such a communication shall have obtained permission to do so from the Council of the Section before which the communication is proposed to be read. (1892.)

Ordinary Meetings.—Order of Business.

61. (1.) Chair to be taken at 8 30 p.m.

(2.) Chairman to read list of specimens, &c., exhibited by card, together with the names of the Exhibitors.

(3.) No Pathological Specimen shall be exhibited at any Section other than the Pathological and Obstetrical, except by card. This Exhibition shall not exclude any subsequent communication regarding it at the Pathological Section.

(4.) There shall be no Exhibition of Specimens by card in the Pathological Section.

(5.) Any member shall have liberty to exhibit any recent specimen at any of the meetings of the Obstetrical Section, provided it illustrates any question in gynæcology.

(6.) At the meetings of the Obstetrical Section recent specimens may be exhibited, and the President may invite discussion thereon, provided that such exhibition of specimens or discussion, if any, thereon, must terminate at 9 o'clock, p.m., but that, if necessary, they may be resumed after the papers for the evening have been read and discussed.

(7.) Chairman to ask if any member has any observations to make or motion to propose relative to any living specimen on the List of Exhibition.

Digitized by Google

(8.) Chairman to call upon the author of the first paper on the list to read his paper.

(9.) Chairman to call upon members to discuss the paper, or, at his discretion, to take any other paper or papers on the list relating to the subject, and have the discussion subsequently on all such papers collectively.

(10.) When the last paper has been discussed, the Chairman to ask if any member desires to speak upon any of the specimens exhibited by card.

(11.) After the discussion upon any specimen, the Exhibitor has the right of reply.

Regulations regarding the Exhibition of Specimens by Card.

62. (1.) Any member may exhibit by card at any Ordinary Meeting, except at the meeting of the Pathological Section. At the meetings of the Pathological Section all specimens must be presented and described *viva voce*, and debate may be invited thereon.

(2.) Notice shall, if possible, be given to the General Secretary, or the Secretary of the Section, on or before the previous Ordinary Meeting.

(3.) Specimens must be in the room at 7 45 on the night of Exhibition.

(4.) Specimens for Exhibition by card shall be open for inspection at 8 p.m.

(5.) A card, containing all particulars for publication, shall be placed with the Specimen. Cards for this purpose are to be obtained from the Secretary.

(6.) The Exhibitor should be present, and he shall furnish further details if asked for.

(7.) Every Exhibitor shall submit the Specimen or Specimens on view to the Committee of Reference, if the meeting so decide.

Exhibition of Pathological Specimens.

63. No lengthened reference to treatment shall be allowed upon any Specimen, except by the express permission of the Chairman. Whenever it has been agreed that a Specimen exhibited at a Sectional Meeting of the Royal Academy of Medicine in Ireland shall be sent to the Reference Committee to report thereon as to its nature, the Exhibitor is to retain the custody of the specimen until he shall be summoned to a meeting of said Committee to be convened by its Secretary, on an early day, when he will attend and submit it for examination. (1889.)

By-laws concerning "Transactions."

64. The "Transactions" shall consist of such Communications made to the Academy by or through Fellows or Members as may be deemed by the General Council suitable for publication; also, of discussions of importance or interest arising out of such Communications.

Digitized by Google

65. All Communications accepted by the Academy become the property of the Academy, but authors may also print their Communications, subsequent to the reading of the same before the Academy, in any publication in addition to the "Transactions." Papers shall be handed to the Secretary of the Section immediately after they have been read. (1891.)

66. The "Transactions" for the year shall be presented to all Fellows of the Academy who have paid their Annual Subscriptions.

67. The "Transactions" may be purchased by Members at cost price.

68. The Publication Committee of each Section shall meet not later than the Tuesday after each meeting of the Section, for the purpose of abstracting the proceedings—the abstract to be placed in the printer's hands on same evening, and forwarded to the editors of medical journals with the least possible delay. (1888.)

69. Contributors of papers may send their papers to the Academy printer early enough to allow of their being put in type before the meeting, provided the author be responsible for the cost of same should the General Council deem the communication not suitable for publication in the "Transactions."

70. That on the evening of the day of meeting of the Sectional Council when the papers for the next meeting have been decided upon, a circular be sent to each contributor by the Secretary of the Section informing him :—

(1.) That he is expected to be ready or else take his place at the bottom of the list.

(2.) That he must have an abstract ready with his paper, otherwise he will be noted in the published proceedings in such form as the Publication Committee think fit.

71. The General Council is empowered to defray the expenses in whole or in part of any illustrations which it may consider advantageous to the elucidation of the papers published by the Academy.

72. An abstract (prepared by the author) of each communication made at the Academy, along with a report of the discussions thereon, shall be furnished to the editors of such medical journals as may desire to publish them, and the authors of such communications shall be empowered to publish their papers *in extenso* in any periodical or periodicals they may think fit, such communications also to appear in the "Transactions," provided the Council consider them worthy of insertion.

Expulsion of Fellow or Member.

73. Expulsion of a Fellow or Member can take place only at a General Meeting of the Academy, on the motion of the Council, if two-thirds of the Members present shall vote for the same by ballot. Of such ballot the Council must give at least fourteen days' notice in writing to every Fellow of the Academy.

New Laws.

74. New Laws, or alterations in existing Laws, can be proposed only at the Annual General Meeting. Any Fellow proposing such alteration shall give notice to the General Secretary at least ten days before the General Meeting in October.

Digitized by Google

REPORT.

THE General Council reports that for the Session 1905-6 the number of Fellows was 202, of Members 28, and of Student Associates 2. The Fellows decreased by 21, the Members by 3, and the Student Associates by 14.

The financial condition of the Academy is in a satisfactory condition. The credit balance in the bank stands at £129 8s. 5d., as compared with £61 5s. 9d. of the previous Session. There was an additional item of expenditure in the present Session owing to the purchase of a new lantern at a cost of £14 0s. 6d.

In conformity with the decision of the last Annual Meeting, that certain of the Sectional Meetings in each Session should be of a general character, in which the different interests should be represented, the Councils of the Medical and Pathological Sections each set apart an evening for this purpose. The attendance at these meetings was much larger than was the case at the ordinary Sectional Meetings. The following table represents the total attendance of Fellows at the Sectional Meetings during the past and the previous Session of the Academy. Your Council desires to point out that the increase in attendance at the weekly meetings was mainly in the Sections where general meetings were held, and that the average attendance at the meetings of the Surgical

Digitized by Google

Section was barely one-half of that recorded in the Medical Section.

	1905-6	1904-5
(*a*) Medical - - -	185	139
(*a*) Surgical - - -	92	134
(*a*) Obstetrical - -	86	80
(*a*) Pathological - -	163	104
(*b*) Anatomy and Physiology -	14	18
(*c*) State Medicine - -	9	28
Total Fellows - -	549	503
Total Members - -	97	99

(*a*) Six meetings held.
(*b*) Two meetings held.
(*c*) One meeting held, the second being abandoned.

At the request of the General Secretary of the British Medical Association to appoint a representative to serve on a Special Committee for the purpose of fixing the standard of puerperal morbidity, your Council nominated Dr. A. J. Horne. It is expected that the work of this Committee will be the means of rendering the comparative statistics of lying-in hospitals of greater value.

The President and Council presented the following Address of Welcome to his Excellency the Earl of Aberdeen on the occasion of his return to Ireland to assume for a second time the Viceroyalty of this country:—

"To His Excellency, JOHN CAMPBELL GORDON, Earl of Aberdeen, Lord Lieutenant-General and General Governor of Ireland.

"MAY IT PLEASE YOUR EXCELLENCY,

"On behalf of the Fellows and Members of the Royal Academy of Medicine in Ireland, we, its President and Council, desire to offer our most respectful congratula-

Digitized by Google

tions and dutiful good wishes on the occasion of your assuming, for the second time, the Viceroyalty of this country.

"As the body which represents the scientific aspects of Medicine in Ireland, as contrasted with its administrative and executive side, we venture to hope that we merit your Excellency's approval.

"This Academy was incorporated in 1882, being formed by the amalgamation of all the Dublin Societies of standing which were cognate to the various branches of Medicine and Surgery, and which are now represented by its various Sections. In 1887, on the occasion of her Jubilee, her late Most Gracious Majesty conferred upon us the title of 'Royal.' Our history has been prosperous and successful, as may be seen from the quality of the work in our annual volumes of 'Transactions.' That our foundation principles are good is shown by the fact that the Medical Societies of London are at present negotiating a movement of the same character that resulted in our foundation twenty-four years ago. We aim at a broad catholicity in our constitution—the office of President, which is held for a period of three years, being alternately filled by a Physician and a Surgeon, so as to represent the different sides of our profession.

"We trust that your Excellency and the gracious lady who is your consort may be preserved in health and happiness, and so enabled to carry out with success the many beneficent duties which you showed yourselves anxious to perform during your previous official connection with Ireland.

"(Signed),
"THORNLEY STOKER,
"*President.*
"JAMES CRAIG,
"*General Secretary.*
"JOHN W. MOORE,
"*Secretary for Foreign Correspondence.*"

The Address was received and replied to by his Excellency in person.

Digitized by Google

General Treasurer's Report for the Session 1905–1906.

RECEIPTS.	£	s.	d.
To Balance in Bank	61	5	9
,, Subscriptions and Entrance Fees	425	15	0
,, Dividends on £596 2s. 4d. 2¼ per cent. Consolidated Stock and £155 1s. 10d. New 2½ per cent. Government Stock	18	0	8
,, Sale of Transactions	1	10	0
Total	£506	11	5

EXPENDITURE.	£	s.	d.
By General Secretary	105	0	0
,, Printing, Stationery, and Postage	61	18	3
,, Transactions, Vol. XXIV.	112	0	0
,, Royal College of Physicians	15	15	0
,, Royal College of Surgeons	15	15	0
,, Reporter	13	13	0
,, Servants	20	10	0
,, Groceries and Milk	11	13	3
,, Lantern Hire	2	2	0
,, New Lantern	14	0	6
,, Care of Microscopes	2	0	0
,, Address to Lord Lieutenant	1	10	0
,, Sundries	1	6	0
,, Balance in Bank	129	8	5
Total	£506	11	5

The Capital is invested in the names of Sir William Thomson, Dr. Walter G. Smith, and Dr. James Craig.

We have examined the Accounts and Vouchers, and certify the same to be correct.

25th September, 1906.

ALFRED E. BOYD, M.B.
TREVOR N. SMITH, F.R.C.S.

Digitized by Google

Volume XXIII. of the "Transactions" has been forwarded to the following:—

IRELAND:—	
Medical Press	Dublin.
National Library	Do.
Queen's College	Belfast.
Do.	Cork.
Do.	Galway.
Royal College of Physicians	Dublin.
Royal College of Surgeons	Do.
Royal Irish Academy	Do.
Royal Dublin Society	Do.
Royal University	Do.
Trinity College	Do.
ENGLAND:—	
Birmingham Medical Review	Birmingham.
Medical Institute	Do.
Bristol Medico-Chirurgical Journal	Bristol.
The University Library	Cambridge
University of Durham College of Medicine	Newcastle-on-Tyne.
Liverpool Medico-Chirurgical Journal	Liverpool.
Journal of Obstetrics and Gynæcology, 60 Chandos-street, W.C.	London
King's College	Do
Lancet	Do.
Library, British Medical Journal, 429 Strand	Do.
Lister Institute of Preventive Medicine, Chelsea Gardens	Do.
Medical Magazine, 62 King William-st., E.C.	Do.
Medical Review, 66 Finsbury Pavement, E.C.	Do.
Official Year Book of Scientific and Learned Societies, Exeter-street, Strand	Do.
Public Health, 1 Upper Montague-street, Russell-sq., W.C.	Do.
Royal College of Physicians	Do.
Royal College of Surgeons	Do.
Royal Society of Medicine, 20 Hanover-square	Do.
The Manchester Medical Society, The Owen's College	Manchester
The Bodleian Library	Oxford
University of London, South Kensington	London
University College, Gower-street, W.C.	Do.
Victoria University	Manchester.
SCOTLAND:—	
University	Aberdeen.
University College	Dundee.
Royal College of Physicians	Edinburgh
Royal College of Surgeons	Do.
The Advocates' Library	Do.
University	Do.
Faculty of Physicians and Surgeons	Glasgow.
University	Do.
Do.	St. Andrews.
EUROPE:—	
University	Amsterdam.
Naturforschende Gesellschaft	Basel.

Digitized by Google

EUROPE—*con.*—

Kgl. University Library, Dorotheen Strasse	Berlin.
University College	Bologna.
Académie Royale de Médecine de Belgique	Brussels.
L'Année Chirurgicale	Do.
Société Belge de Chirurgie	Do.
Université Libre	Do.
University College	Christiania.
Académie de Médecine	Copenhagen.
La Grèce Medicale, Syra	Greece.
Real Institute Bacteriologico Camera Pestana	Lisbon
University College	Madrid.
Archivio di Ortopedia	Milan
Académie de Médecine	Paris.
Archives Orientales	Do.
Revue de Chirurgie	Do.
University of Paris	Do.
Imperial University	St. Petersburg.
Royal Carolinska Med. Chir. Institution	Stockholm.
University Library	Strasburg.
Archivio Italiano di Otologia	Turin.
Medical Society, Royal University	Upsala.
University	Vienna.
Naturforschende Gesellschaft	Zurich.

AMERICA :—

Johns Hopkins University	Baltimore.
Journal of Medical Research	Boston, Mass.
Brooklyn Medical Journal	Brooklyn.
McGill University	Montreal
Academy of Medicine, 17 West 43rd Street	New York.
University	Do.
Journal of Mental Pathology	Do.
American Medical Association	Philadelphia.
College of Physicians	Do.
University of Pennsylvania	Do.
University Lavel	Quebec.
University of Toronto	Toronto.
Charlotte Medical Journal, Charlotte, N. C.	United States.
Library, Surg.-General's Office, Washington	Do.
Medical Library Association, 19th and Stout-streets, Denver, Colorado	Do.

AUSTRALASIA :—

University	Adelaide.
Do.	Auckland.
Do.	Melbourne.
Inter-Colonial Medical Journal	Do.
University of Otago	New Zealand.
The Australasian Medical Gazette,	Sydney, N.S.W.
University of Sydney, care of Young J. Pentland, 38 West Smithfield, London, E.C.	Do.

ASIA :—

Bombay University	Bombay.
University	Calcutta.
Imperial University Library	Tokio, Japan.
Library, Bureau of Science	Manilla, P.I.

Digitized by Google

BOSTON MEDICAL
SEP 3 1907
LIBRARY

TRANSACTIONS

OF THE

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

THE SO-CALLED FUNCTIONAL CARDIAC MURMURS.

By R. TRAVERS SMITH, M.D. Univ. Dub., F.R.C.P.I.;
Physician to the Richmond, Whitworth and Hardwicke Hospitals.

[Read in the Section of Medicine, November 9, 1906.]

The so-called functional cardiac murmurs, as a result of their frequent occurrence, their usually accepted unimportance, the exaggerated intimacy of their association with anæmia, their supposed inexplicability, have seldom attracted the interest and attention which they appear to me to merit. My own experience has rather impressed me with the importance of closer study of these murmurs, and of their morbid origin, as affording important evidence of the state of the myocardium.

If for no other reasons than that it is sometimes difficult, if not impossible, to diagnose a functional murmur from one the result of organic valve disease, and that the grave mistake is very frequently made of wrongly diagnosing and treating a patient with merely functional disease, the subject is worthy

Digitized by Google

of consideration. What can be a commoner hospital case to come across, now and in recent years, than that of a soldier who, having served his country during the South African war as long as he was able, was then dismissed from the service as medically unfit—the result of valvular disease of the heart. On examination he has no cardiac murmur whatsoever or other sign of valve disease. No doubt at the time of his dismissal, or so it is to be hoped, he at least had a functional cardiac murmur which, however, was diagnosed as organic. To my own certain knowledge the army has lost some good soldiers through this mistake.

May I say, sir, that for some years past the study of functional murmurs has been a source of interest to me. Despite this fact my paper to-night will not contain much that is original, but will contain some points which, though they have already been written about, have not as yet appeared in any of the medical text-books or special treatises on the heart which I can find.

And now, to consider first the commonest functional murmur—the pulmonary systolic murmur, or pulmonary hæmic murmur—for brevity's sake I shall allude to it as the pulmonary murmur. Most of the following characters and accompanying conditions of this murmur are well known, but this is not so with some of them. Let us briefly discuss them *seriatim* :—

(1) The pulmonary murmur is very far from being as constantly associated with anæmia as is generally supposed; and this, whether anæmia be sought for by its ordinary clinical signs and symptoms or hæmatologically. Most of the theories which have been founded chiefly on *a priori* reasoning to explain this murmur have an anæmic basis, yet it is readily demonstrable that in many cases of severe anæmia the murmur is absent, and the frequency of its presence is in no way proportionate to the degree of anæmia. In short, the murmur

Digitized by Google

is frequently found with and without anæmia, though in text-books it is almost invariably described in the passages which treat of anæmia as if it was only to be found in this condition.

(2) The murmur is common in any condition which may lead to debility and general lowering of muscular tone, thus leading to a relaxed and flabby state of the bodily musculature. It is, therefore, a usual phenomenon to observe, not only in anæmic individuals, but in anyone who is seriously out of training, underfed, over-anxious and worried, or (for want of a better term) suffering from neurasthenia. Another large class is supplied by those who are, or have recently been, the subjects of some toxæmia, usually of bacterial origin. I should like to lay special stress upon the occurrence of the pulmonary or some functional murmur during the course of, or subsequent to, rheumatic fever, since it is so often accepted without further questioning that any murmur in connection with rheumatic fever is endocarditic in origin. In my experience the number of rheumatic fever patients who develop some systolic heart murmur, which ultimately quite disappears (though perhaps not for weeks), and is therefore in all probability but functional, is very surprising.

(3) Though the pulmonary murmur under discussion is common in the classes of patients just indicated—namely, those with flabby musculature, skeletal and visceral—it is even more common when some strain has been superadded. The strain need not be of a very sudden or violent nature, may, in fact, be nothing that would warrant the term strain to a normal individual. To this point I have paid particular attention. Over and over again I have observed convalescent patients in the Hardwicke Fever Hospital, who, as long as they were left in bed, presented no cardiac murmur, but when allowed to sit up, thereby imposing increased work upon the heart, on their return to bed had unequivocal pulmonary

Digitized by Google

systolic murmurs, which in many instances had not disappeared even the next day. A good example of this I observed in a boy, aged twelve, the subject of rheumatic fever, in the Whitworth Hospital. During his fever no murmur was heard, but on examining him in bed the day after that on which he was first allowed up I heard a loud pulmonary systolic murmur. It was still present, though less audible, the next day, but had disappeared the following day, when he was again allowed up for a short time. Again the murmur appeared, to disappear with a day's rest, only to recur when the patient was allowed up upon a third occasion. This time the murmur lasted but a short time, and never presented itself again as long as he remained in hospital, though the amount of his exercise was gradually increased.

Other examples, I may mention, were the appearance of this functional murmur in an untrained football player after his first match of the season and its appearance in a patient immediately after uræmic convulsions. That a chlorotic girl may have this murmur pronounced in the waiting-room, when being admitted to hospital, and absent the next day after twenty-four hours merely resting in bed, only to reappear if allowed up before the chlorosis is completely cured, is a matter of such common knowledge as to require no emphasis. The same may be said concerning the flabby nervous individual, who, under the influence of the excitement of medical examination causing increased cardiac action, presents this murmur, but ceases to do so on being reassured and becoming more at home in the doctor's presence.

This murmur would appear, therefore, to be predisposed to by any condition which might, to a minor degree, weaken the myocardium, and to be excited more directly by circumstances inducing strain—absolute or relative.

(4) These murmurs are best heard at the upper border or behind the third left costal cartilage, just at its junction with

Digitized by Google

the sternum. They can often, it is true, be heard also over the tip of the left auricular appendix, corresponding on the surface to a point one inch to left of sternum in second left space; but that they are not as a rule most audible at this point may fairly be proved by the fact that when a murmur is an ill-pronounced one it can only be heard close to the sternum, and not over the auricular appendix.

(5) They are not traceable in an upward direction, a little better downwards, and may be frequently heard at the apex, accompanying but not replacing the first sound.

(6) Without exception pulmonary murmurs are more audible during expiration than inspiration, and when unpronounced are only heard in expiration. I have met with patients in whom this murmur might be expected, as judged by their general condition, but not finding it during ordinary respiration I was able to induce it by directing the chest to be held as long as possible in a phase of forced expiration. With every heart systole, till inspiration became imperative, the murmur grew louder and louder. An important point is whether the murmur is generated of the *same* intensity during inspiration (and is only less audible owing to the more expanded state of the lungs), or whether there is a *less* intense sound generated in inspiration than expiration. To judge by the behaviour of basal murmurs of organic origin, which are not effected at all to the same degree in their audibility by the phases of respiration, it would appear that the pulmonary functional murmur under discussion is actually generated to its greatest intensity during expiration.

(7) By no means invariably, yet frequently, these murmurs disappear or become less intense when a degree of exertion is performed which causes increased force of heart's action. Even sudden change from the recumbent to the erect posture, implying, as it does, increased work for the heart, is often sufficient to effect a diminution in a murmur. Comparatively

Digitized by Google

rarely the murmur increases with exercise, or doubtfully changes.

(8) Of particular import, and a point which has attracted but little attention, is one upon which I should like to lay special stress—namely, the enlargement of the area of superficial cardiac dulness—which almost constantly occurs in patients with pulmonary murmurs, unless emphysema of the lungs be present. The enlargement is not in the lateral direction, as is usually sought for with organic valve disease, but almost entirely in an upward direction. It frequently extends as high as the upper border of the third rib, or even some distance into second left interspace, close to the sternum. In some cases the area of dulness is wider at the level of the third rib than at the fourth or fourth interspace, but this may be due to the shape of the incisura in the left lung of the individual concerned. This upward extension of dulness is not only to be found in children, in whom it is not so significant as it approaches more nearly the normal, but also in adults. The increased dulness, I submit, is not always due to retraction of the lungs, which has been stated to be very common in anæmia, for the simple reason that it may be found in the *absence* of anæmia, and when careful percussion of the other margins of the lungs indicates no retraction.

(10) Though so common in the young, pulmonary murmurs are comparatively rare in elderly individuals.

(11) I have never heard a pulmonary murmur in connection with gross dilatation and failure of the right ventricle—in fact, it is absent when a tricuspid regurgitant murmur is commonest.

(12) The pulmonary second sound is often accentuated, even though allowance be made for its normal relative loudness as compared with the aortic in youth, and even if there be no anæmia in the case.

(13) On two occasions I have heard the very rare functional pulmonary diastolic murmur when the systolic was also

Digitized by Google

present. The first case was that of a young lady who had been through a period of strain and anxiety nursing a sick relation. She consulted me for palpitation of the heart and general debility. She was not apparently anæmic. An extraordinarily loud systolic murmur, fulfilling all the requirements necessary for the diagnosis of a functional murmur, was heard in the pulmonary area. Accompanying the pulmonary second sound was a distinct diastolic murmur to be traced for some distance down the left border of the sternum. Though the diastolic murmur, of course, inclined me to the opinion that there was organic disease of the pulmonary valves, in fact combined stenosis and incompetence, I sounded no alarm, and gave a good prognosis, believing that, if such was the case, the malady was congenital and well compensated. On a second visit, after rest and tonics, the diastolic murmur had gone, and on a third visit, following a trip abroad, the systolic had also gone. When again I examined this patient, after a year's interval, the heart was in all respects normal. The second case I observed in a young woman the day after her admission to the Hardwicke Fever Hospital, early in an attack of enteric fever. The diastolic murmur had vanished the next day.

The question now arises, can those thirteen clinically observable facts be reconciled with any of the numerous current theories which have been urged to explain the functional pulmonary systolic murmur? To me any reconciliation of the kind has always seemed impossible. The following is a list of these theories briefly mentioned, each one being, as it appears to me, capable of ready refutation in the light of clinical observation:—

(1) Dilatation of the pulmonary artery, and so "relative stenosis" of the pulmonary orifice. To refute this the questions have only to be asked—What is there to dilate the pulmonary artery in the conditions to which the murmur is

Digitized by Google

incidental? Why should the dilatation come and go? Why does not dilatation of the aorta constantly produce a corresponding murmur? Why should the dilatation so often diminish on exertion?

(2) Congenital narrowing of the pulmonary artery. This, being such a very rare *post-mortem* finding, can hardly be the explanation of such a very common clinical phenomenon.

(3) Diminution of the total volume of the blood in circulation in cases of chlorosis leading to a relaxed and misshapen state of the pulmonary artery. Against this view are the facts that a relaxed pulmonary artery could only result from such low blood pressure that the circulation could not be normally maintained through the lungs; there ought to be presumably a corresponding murmur in the aorta; and, also, recent investigations go to show that the total volume of blood in circulation in chlorosis is increased not diminished.

(4) Low specific gravity and increased viscosity of the blood promoting the occurrence of abnormal "fluid veins" in the pulmonary artery. Experiments fail to prove that fluids of different specific gravities, when circulating in closed channels of exactly similar shape, produce different sounds. Why should the specific gravity and viscosity of the blood increase and diminish in the way the murmur does?

(5) Systolic stretching of a relaxed pulmonary artery, or abnormally great pulsation. The lower the mean pressure in the pulmonary artery the greater ought to be the amplitude of pulsation (other things being equal)—yet inspiration which lowers the pressure in the pulmonary artery diminishes the murmur. A murmur does not occur in the aorta from great systolic stretching as is incidental to pure, though marked, aortic regurgitation.

(6) Incomplete opening of pulmonary valves as a result of a weak or degenerate myocardium. If this were the explanation the pulmonary murmur ought to be fairly constant when

Digitized by Google

the right ventricle shows the dilatation of failure to any marked degree, a condition under which I have never heard it. Furthermore, the lungs ought to show signs of hypostatic congestion if the right ventricle was too feeble to open the pulmonary orifice.

(7) That the pulmonary murmur is the result of relative incompetence of the mitral valve, and is conveyed in the direction of the regurgitant stream to the tip of the left auricular appendix, and so to the surface in the second left intercostal space. In opposition to this view it may be urged that the murmur of organic mitral regurgitation very rarely has its point of maximum intensity over the left auricular appendix—such a case, however, I have described in Vol. XXIII. of our Transactions. Physical signs of dilatation of the left ventricle as a cause of the incompetence are wanting; and, as a matter of fact, the murmur is not heard *best* over the left auricular appendix.

(8) The pericardium being abnormally dry as the result of anæmia, the murmur is really a pericardial friction rub. This view, to my mind, has nothing in its favour, and much against it.

So much for the usual theories proffered to explain the common functional pulmonary systolic murmur! They are all unsatisfactory and out of harmony with the etiological and clinical description of the murmur just given. It appears to me that the true explanation does not lie in changes in the physical state of the blood or in abnormalities in shape or size of the pulmonary artery or its valves, but must be sought in some change in the heart muscle. The following theory, I submit, affords the road of least resistance, and alone explains the etiology of, and the physical signs accompanying, the murmur—it may be thus enunciated:—Of the outer boundary walls of the ventricles, the thinnest and so presumably weakest portion is that which constitutes the infundibulum

Digitized by Google

or conus arteriosus of the right ventricle. It is reasonable to suppose that if overstrain be imposed upon the ventricles the portion of their walls likely to suffer first would be the thin infundibulum, as it has to support the same blood pressure as their thicker parts. Particularly soon would it suffer if the whole heart were in a state of diminished tone and vigour. At first the effect of the strain on the weak infundibulum is to render its systole incomplete, and so incomplete emptying of this portion of the right ventricle. Should the myocardial weakness or the strain continue or increase, next will follow dilatation of the infundibulum and less complete emptying at systole. In fact a local bulging forms at the infundibulum, which may be justly described as a temporary aneurysm. This aneurysmal dilatation may be merely relative, due to incomplete contraction of the infundibulum during systole, or absolute when the dilatation still exists in diastole. In either case the blood which is forced by the contraction of the body of the right ventricle through the passive infundibulum must pass around an angle to gain the pulmonary artery. The apex of this angle is constituted by the fibrous ring at the mouth of the pulmonary artery, into which the segments of its valve are inserted. It is this mechanical obstruction to the passage of blood from the right ventricle, *via* the infundibulum, into the pulmonary artery which causes the common pulmonary functional systolic murmur—in fact, the passage of blood through a temporary aneurysmal sac at the proximal side of the valve.

Apart from the fact that the pulmonary murmur is common in people with "flabby" muscles, especially when subjected to some strain, it may be asked if the remaining clinical observations previously described coincide with the theory of infundibular dilatation as accurately? I think they do. The murmur is best heard at the point where the infundibulum

Digitized by Google

passes into the pulmonary artery, the upper border or behind the third left costal cartilage. As above this point the pulmonary artery tends to pass away from the surface and below the infundibulum comes nearer the surface, the murmur is conducted, if anywhere, better downwards than upwards.

This theory affords an explanation of why the murmur is more audible during expiration than inspiration. During expiration the blood pressure in the pulmonary artery is raised, increasing the artery's caliber, and so the angle around which the blood must pass is accentuated. The increased blood pressure also further dilates the infundibulum. Furthermore, the infundibulum is less covered by lung during expiration, and so nearer the chest wall. It may be said then that expiration both generates a louder murmur and allows it to be better heard than inspiration.

That a pulmonary systolic murmur may be caused by straining a weak myocardium, yet, when present, frequently disappears on some sudden exertion, as sitting up, may appear inconsistent, but such are the facts. It is easy to imagine, however, a state of the myocardium in which dilatation or incomplete systole of the infundibulum might be temporarily overcome by the stimulus which a sharp exertion affords to the heart for a short time, whereas the dilatation might be produced by a more violent or more prolonged exertion. As before stated, the murmur may not diminish on exertion, and may even increase. This is to be interpreted as signifying greater myocardial weakness, and so more permanent infundibular dilatation which extra force of cardiac action is unable to overcome, and may even accentuate. The effect of exercise appears to be the most variable phenomenon in connection with the murmur, but this variability is explicable in the light of the theory under discussion. Nay more, the effect of

Digitized by Google

exercise, being a guide to the permanence of the dilatation, is a guide to the severity of its predisposing and exciting causes, and so to prognosis and treatment.

The explanation which this theory affords of the almost constant upward enlargement of the s. a. c. d. is obvious; this sign especially remains unaccounted for on any other hypothesis. Even when the dulness is *not* enlarged upwards in the presence of the murmur it may then be surmised that its cause is merely incomplete infundibular systole. The tendency to enlargement of the right ventricle as a whole, and of the infundibulum in particular, would cause the slight direct displacement of the apex outwards, when present.

The accentuated pulmonary second sound, when present, may be only apparent, and due to better conduction, as the result of the dilated infundibulum being in firmer contact with the chest wall, and containing some blood at the very commencement of ventricular diastole, the time at which the second sound occurs.

The hitherto unaccountable functional diastolic murmur now admits, to my mind, of the ready explanation that it is due to the blood which has remained in the infundibulum after systole, regurgitating thence into the body of the right ventricle at commencing diastole.

Pulmonary murmurs are more common in youth than in age. May not this be due to the relatively greater pressure in the right ventricle in youth (which finds its expression in the relatively louder pulmonary second sound) predisposing to dilatation of the thin infundibulum?

As stated above, when serious dilatation of the right ventricle is present, a pulmonary murmur must be very rare, for I have never heard a tricuspid regurgitant and a functional pulmonary systolic murmur coexisting. To account for this it may be suggested that when general dilatation of the

Digitized by Google

ventricle has occurred the aneurysmal-like dilatation of the infundibulum must tend to diminish, and the blood is driven into the pulmonary artery with poor force.

The object of this paper is now attained if I have shown that the infundibular dilatation view of this murmur is feasible on etiological grounds, that there are not wanting physical signs to directly support it, and that it affords a rational and effective explanation of the other clinical accompaniments of the murmur.

Dr. Moorhead said he regretted that Dr. Smith had not given them his views on the other functional murmurs. He had himself first accepted, without much thought, the idea that the functional murmurs generally were produced by some alteration in the normal relation between the blood and the vessel wall, accepting that normal blood flows through normal vessels without producing murmurs. Very soon, however, he had to give up that idea, and he found it necessary to find some theory which would explain the murmurs heard in cases of acute endocarditis as well as the ordinary so-called functional murmurs. In such cases he could not conceive that the small vegetations that are seen on the edges of the valves were capable of preventing the valves from closing. He then took the view that functional murmurs and the murmur of acute endocarditis were due to muscular relaxation, and were functional in the sense that the muscle from its weakness relaxed, and regurgitation took place. Anything in the way of relaxation that would give rise to aortic systolic murmur—a rare condition, he admitted—would surely also give rise to a pulmonary functional murmur and to a mitral functional murmur. Although it was possible that Dr. Smith's theory would be applicable to the other valves he was not prepared to accept it fully.

Dr. Smith, in reply, said that Dr. Moorhead's mental phases in trying to find an explanation for functional murmurs were the same as his own. It was his intention to deal with the other murmurs in another paper. He did not think that Dr. Moor-

Digitized by Google

head's suggestion, that pulmonary and mitral functional murmurs ought to be present where an aortic murmur was present, was against his (Dr. Smith's) own view. The exact spot at which a murmur was heard did not indicate the seat of the murmur. He suggested that aortic systolic functional murmur, which was of extreme rarity, was to be explained by the pulmonary murmur, which was the commonest, being, for some reason, conveyed best to aortic area.

Digitized by Google

SPLENOMEGALY WITH EOSINOPHILIA.

(Functional Desplenisation.)

By ALFRED R. PARSONS, M.D. Univ. Dub.; F.R.C.P.I.;
Physician to the Royal City of Dublin Hospital.

[Read in the Section of Medicine, November 9, 1906.]

Enlargement of the spleen may be either acute or chronic. Of the former variety typhoid fever and acute miliary tuberculosis afford in these countries two of the commonest examples. As causes of chronic enlargement of medium size it will be sufficient to mention passive congestion due to cardiac disease or to cirrhosis of the liver, the diffuse variety of amyloid disease, Hodgkins' disease, pernicious anæmia occasionally and chlorosis. Considerable enlargement of the spleen in tropical countries is suggestive of repeated attacks of malaria or of kala-azar. Of this latter disease there have been two examples in Dublin during the past few years. Both of them were Anglo-Indians, and in one case the patient was sent home from India as suffering from a form of obstinate malaria not amenable to quinine. In patients who have never lived abroad, or have, at least, never suffered from malaria or kala-azar, extreme splenic enlargement is most commonly associated with myelogenous leukæmia.

The following clinical records afford examples of a great increase in the size of the spleen not attributable to any of the above-mentioned causes. These cases constitute a class which, from a diagnostic and prognostic point of view, must be most carefully distinguished from the more usual varieties of extreme splenic enlargement.

T. J., aged fifty-one years, was admitted into the Royal City

Digitized by Google

of Dublin Hospital under my care on March 22, and discharged June 16, 1906. On admission he complained of pain in the left side of abdomen when walking, standing, or even sitting up in bed. He also had swelling of the abdomen and a sense of dragging weight. Going up stairs produced breathlessness.

Previous History.—As a child he had scarlatina and measles. In 1884, when twenty-nine years of age, he emigrated to Queensland, and spent some years travelling through the country. About 1889 he got an attack of "colonial fever." He had a high temperature, was put on low diet, and kept in bed for ten days. He was soon about again, but he thinks his digestion never got thoroughly right. Some twelve months later he got rheumatic fever; his joints became swollen and painful, and he was lame for a considerable time. He was advised to return home. He did so in 1894, and commenced a course of Turkish baths. On one occasion while in the bath he felt a swelling in the left side of the abdomen, and noticed that the left was harder and more prominent than the right side. The swelling which he detected this time, and confirmed on several subsequent occasions, was about half its present size. As it gave him no inconvenience he did not seek medical advice. Towards the end of 1895 he got severe pain one day after taking a walk, and then he consulted Dr. Denham.

In January, 1896, Dr. Denham exhibited the patient before the Pathological Section of the Academy of Medicine. There is no reference to the case in the Transactions of the Academy for 1896, but the medical journals in reporting the meeting refer to the case. The following extract is from the *Medical Press and Circular*, p. 109, Vol. I., 1896:—"He (Dr. Denham) had made four examinations of the blood with Gower's Hæmatometer, at intervals of a week, with the following results—

	Red Corpuscles	White Corpuscles
1st	70%	9%
2nd	73%	8%
3rd	82%	2%
4th	85%	2%

Dr. McWeeney had made stained preparations, which were under the microscope. In these numerous eosinophile cells were to be seen, but Dr. McWeeney had been unable to find any myelo-

Digitized by Google

genic cells. It was remarkable that, notwithstanding the size of the tumour and the altered condition of the blood, the patient enjoyed very fair health, suffering little or no discomfort—slight constipation and breathlessness only on severe exertion. The fact that under treatment the number of the white blood cells had markedly diminished, and that no blood marrow cells were discoverable, gave the case decidedly a less hopeless appearance."

In February, 1896, he went into the Adelaide Hospital under Dr. Little's care. He was treated with arsenic and electricity. He was in the hospital for eleven or twelve weeks. The spleen was unchanged, but his general health was better. He returned to the South of Ireland and continued taking arsenic. He had commenced with ♏5 of Fowler's solution, and gradually increased up to ♏9, thrice daily. In October he got so ill that he had to consult the local doctor, who stopped the arsenic at once, as he believed he was suffering from arsenical poisoning. In 1897 he was readmitted to the Adelaide Hospital. Dr. Little considered that the tumour had slightly increased in size, and recommended him to go into the Hospital for Incurables. This he did in 1898. His general health and weight improved till 1905, when he noticed that he could get about less than formerly, and that he was not so well able to walk a short distance as he had been. He also found it more difficult for him to sit up straight.

Family History.—His father is still alive. He is eighty-three years of age, and suffers from his heart. His mother died about a year ago, aged seventy years. His brothers and sisters are all alive and in good health, except one sister who died, aged thirty-three years, from internal complications.

Personal Habits.—The patient is not a teetotaller, but he is abstemious. He has never had any venereal disorder.

Present Condition.—On inspection the patient is healthy-looking and well nourished. His teeth are almost perfect. His tongue is clean, and he says he can eat anything save meat, which constipates him. Thorax is normal, except that there is no well-marked differentiation between the pulmonary resonance on the right side and the hepatic dulness. There is only a slight modification of the pulmonary note in the fourth and fifth intercostal spaces, and a tympanitic note is audible from the level of

Digitized by Google

the sixth rib downwards. The cardiac dulness also begins a little higher than normal.

Abdomen.—On inspection it is full, rounded and prominent, the prominence being most marked in the left hypochondriac region and extending into epigastric and left lumbar regions. On palpation a solid tumour can be felt emerging from under the left costal arch near the middle line, and extending downwards and outwards to a distance of 9 c.m. to the right of the middle line at the level of the umbilicus. Its lower margin is a little below the line joining the anterior superior iliac spines. The tumour is smooth on the surface, with smooth, rounded edge, and no notch can be felt. It is slightly tender to the touch.

Percussion.—An area of dulness lies over the tumour, but it is not quite so extensive, as there is a resonant note along the right margin.

Urine.—Pale and clear; sp. gr. 1010. Reaction faintly acid. Albumen present. Sugar absent.

Blood Examinations:—

Hæmoglobin	varied	between 78%	and 89%
Red blood cells	,,	5,790,000	,, 8,560,000
White blood cells	,,	6,000	,, 20,000
Differential Count—			
Polymorphonuclears	varied	between 56%	and 52%
Eosinophiles	,,	,, 0%	,, 10%
Lymphocytes		21%	to 37%
Hyaline		2%	,, 5%

Weight increased from 11 stone 6 lbs. 8 ozs. to 11 stone 13 lbs.

The patient came into the Royal City of Dublin Hospital to undergo a course of X-ray treatment to determine if it could produce any diminution in the size of the spleen. Dr. Charles Benson, X-rayist to the Hospital, gave him thirty sittings of fifteen minutes duration. The tube was placed six inches from the abdomen. The application produced no constitutional disturbances, and at best only a doubtful moderate diminution in the spleen was attained. During a month Dr. Alexander made a careful investigation into the urinary metabolism, which he found to be practically within normal limits. After nearly three months' treatment the patient returned to the Royal Hospital for Incurables.

Digitized by Google

Case II.—G. K., aged fifteen years, a hairdresser, came to the Extern Department of the Royal City of Dublin Hospital in May, 1906, complaining of pains in his knees and left shoulder. His mother stated that he had been in the North Union Hospital in September, 1905, suffering from rheumatic fever. There was swelling of his ankles so that he could not walk. He was in the hospital five weeks, but he was confined to bed for only one week. As the examination of his shoulder was completed his mother mentioned incidentally that his stomach was always swollen. After examination he was admitted to hospital.

Family History.—Father alive, aged forty-six years, a miner by occupation, a healthy, well-developed man who, so far as can be ascertained, never had any venereal disease, but he is at times a hard drinker. Mother alive, aged forty-six years, health good. She has never been ill since her marriage. They had three sons and three daughters. The patient is a twin. His twin sister lived to be only seven months old. Her death was stated to be due to "something gastric." Two sons and two daughters survive, and are in good health.

Previous History.—Three or four years ago suffered from abdominal pain and diarrhœa, which were occasionally so bad that they kept him from school. Two years ago he was apprenticed to the hairdressing. He felt well except that he had occasional attacks of pain in his knees. The pain became so bad in September, 1905, that he had to seek admission to the Union Hospital. As far back as he can remember his stomach had been too large, but it never gave him any inconvenience except the above-mentioned pains.

Present Condition.—He complains only of pain in his left shoulder, otherwise he feels perfectly well, and suffers no discomfort from his abdomen or knees.

On Inspection.—He is dark and a little sallow. He is fairly well nourished. His eyes are apparently normal, and his lips are a good colour. The back teeth are carious; tongue is clean; face is freckled.

Neck.—The glands along the posterior border of the sterno-mastoid are as large as grains of shot, and there is considerable pulsation at the root of the neck.

Thorax.—Shoulders are rather high. The chest looks deep,

Digitized by Google

and is too prominent in the lower portion. There is marked pulsation in the second and third intercostal spaces on the left side. On percussion the superficial cardiac dulness commenced on the second rib. On palpation the apex beat was felt in the fourth intercostal space inside the nipple. Auscultation disclosed no abnormal cardiac or pulmonary sounds.

Abdomen.—Distention of upper part chiefly involving left hypochondrium and epigastrium. On palpation a hard, smooth mass with a well-defined edge can be easily felt. It extends across the abdomen towards the right hypochondrium, and transgresses the middle line by 7 c.cms. In the left lumbar region it extends downwards below the level of the umbilicus. On percussion, dulness begins on the sixth rib in the nipple line and on the seventh in the anterior axillary line, and extends all over the tumour. On the right side there is an ill-defined dull note on the sixth rib in the nipple line. Below this level the note is rather tympanitic. The shape of the tumour is not unlike a greatly enlarged liver on the wrong side. That this is not the case is shown by the fact that on deep inspiration the edge of the liver can be felt in its normal situation riding over the spleen.

Urine.—Normal.

Blood.—Numerous examinations of the blood were made while in hospital. The following may be taken as a fair example. It was made by Dr. Symes on May 30, 1906 :—

Hæmoglobin	...	48 %
Red blood cells	...	4,340,000
White blood cells	...	2,500[a]
Differential Count—		
Polymorphonuclears	...	36 %
Eosinophiles	...	16 %
Lymphocytes	...	28 %
Hyaline	...	20 %

X-ray treatment produced no alteration in the size of the spleen. His weight increased from 7 stone 1 lb. on July 4, 1906, to 7 stone 8 lbs. on October 3.

During the month of November he became very feverish, and an abscess developed in the lumbar region, which was opened on November 23; one also formed on the shoulder, which was

[a] This is exceptionally low; 5,000 to 7,000 was the usual figure.

Digitized by Google

opened on November 27. Both healed without any complications, and the temperature settled down to normal. The pus contained the *Streptococcus pyogenes*, and the pus cells were chiefly polymorphonuclears, with a considerable percentage of eosinophiles. A blood examination was made at the commencement of the attack, and showed a considerable leucocytosis, the white cells being 35,000 per c.mm. On differential estimation the polymorphonuclears neutrophiles had increased to 80 per cent., and the eosinophiles had fallen to 8 per cent. A second examination, made on January 11, showed that the white blood cells had fallen to 11,000 per c.mm. There was no alteration in the size of the liver or the spleen during this febrile attack.

On his discharge he was perfectly well, the enlargement of the spleen causing him no inconvenience.

The alteration in the white blood cells, especially the lymphocytosis, and, even more important, the eosinophilia, is comparable in striking fashion with the changes in the blood of guinea pigs after splenectomy described by Kurloff, who carried out a series of investigations in Ehrlich's laboratory in 1888.

The similarity in the blood suggests that in these cases of splenomegaly the spleen has ceased to discharge its functions, and that a hypertrophy of other hæmic organs has occurred. In other words, the cases may be described as examples of functional desplenisation.

The differential diagnosis, excluding malaria and kala-azar, is chiefly concerned with myelogenous leukæmia, which from a prognostic point of view is a much graver disease, and apparently always fatal. This condition of splenomegaly does not appear to be incompatible with a long life, and produces no discomfort except that due to the size and weight of the tumour.

Dr. Rowlette said he had seen the case some years previously, and the spleen did not appear to have increased in size. During

Digitized by Google

observation the health of the patient had remained exceedingly good, apart from the discomfort through the weight and size of the tumour.

Dr. Peacocke quoted a case which turned out a case of Hodgkin's disease. The splenic tumour was simply a mass of lymphoid tissue. An operation was successfully performed, and he suggested the removal of the spleen in the case before them as a curative method.

Dr. Harvey said he had seen cases of an ordinary type treated with X-rays with apparently very different results from those in the present cases. Such treatment was likely to have altered the pathology of the spleen considerably. The effect in animals was to destroy the lymphocytes in considerable degree.

Dr. Parsons, replying to questions by Drs. Moorhead, Kirkpatrick, and Smith, said the patient at no time had syphilis. He did not consider the cases identical merely because they had eosinophilia. The cases were on the same level. There was no deterioration in health, no threatened shortening of life, and no inconvenience except in the weight of the tumours. Lymphocytosis was not very marked; exactly the same was found in the case of splenectomised animals, which tended to confirm his view that the two patients were functionally splenectomised. Several examinations of the blood had been made before the X-ray treatment was commenced, and there was found to be no diminution in the number of the lymphocytes. Anxious as he was to know the pathology of the spleen he did not feel justified in recommending its removal, as no inconvenience was caused, and no further enlargement was threatened.

Digitized by Google

OUR DEBT TO IRELAND IN THE STUDY OF THE CIRCULATION.

By GEORGE A. GIBSON, M.D., Sc.D., LL.D.;
Physician to the Royal Infirmary, Edinburgh.

[An Address delivered before the Medical Section, December 7, 1906.]

It seems to me that the most appropriate recognition of your generous invitation will be to devote my remarks to a consideration of the invaluable contributions made by Ireland to the solution of problems connected with the circulation. The matter has, for many years, engaged my constant attention, and numerous references to the works of your distinguished countrymen have been made by me, both in speaking and writing.

This is not merely a labour of love, it is at the same time a bounden duty. It bears also in itself the prospect of practical usefulness, for it may be confidently affirmed that the researches and investigations of the great masters show, as his friend and biographer said of Graves,[1] "how the past can be made to illuminate the works of the present time."

Speaking to-night in this beautiful hall, surrounded by portraits of the illustrious men who have thrown the glamour of their achievements over this great school, and have added to the lustre of your ancient city, it is no great stretch of the imagination to think that our ears still throb with the echoes of their voices.

It is a most gratifying subject of reflection that in the early days of modern medicine Dublin and Edinburgh were so closely associated, and it is pleasant to know that at the present time there are connecting links between the two

Digitized by Google

Universities. If any words of mine can further the good fellowship existing between these two seats of learning, any labours spent on this subject will be amply rewarded.

In reviewing the Irish contributions to the physiology and pathology of the circulation it is natural, in the first place, to mention the books which have appeared bearing upon these subjects. First amongst these come the Clinical Lectures of Graves[2]—a work remarkable for its originality of conception, its breadth of view, and its felicity of diction. Trousseau, as is well known, urged those of his pupils who read English to regard it as their breviary.[3] It would be foreign to my present purpose to deal with it from any point of view save in so far as it is devoted to circulatory affections, but, restricting our attention entirely to this latter subject, we have most valuable studies upon the condition of the heart in fever, on the clinical features of pericarditis, on pneumo-pericardium, upon cardiac symptoms and their significance, and, above all, upon that most interesting disease which in most countries still bears his name. To all these matters attention will be directed in the sequel.

One of the most philosophical parts of this great book is devoted to the facts of the blood supply of the lungs and the types of hæmoptysis resulting from cardiac and pulmonary lesions.[4] It constitutes one of the most scientific expositions which have at any time appeared on this subject.

Two points may be referred to in connection with this work—One is the generous tone which pervades it, and which is seen most beautifully in the graceful dedication to Stokes—"Once his pupil, now his colleague, ever his friend." Another aspect is the delightful satire in which the author frequently indulges, and which, perhaps, is nowhere seen more clearly than in a footnote to one of the introductory lectures,[5] which runs as follows:—"When this information was conveyed, as it formerly was at Sir P. Dun's Hospital, in Latin,

Digitized by Google

the student had to encounter another barrier to the acquisition of knowledge. I have called the language *Latin*, in compliance with the generally received opinion concerning its nature." Lest it may be thought that in making reference to this matter there is any intention to say anything ungenerous to a sister school let me hasten to add that in the following pages [6] Graves passes two or three well-merited strictures upon the methods employed in Edinburgh when he studied there.

Of the work of Stokes,[7] it is indeed difficult to speak in measured language. Every page is instinct with the individuality of its great author, and carries the impress of original observation. Upon almost every aspect of circulatory disease it adds something to the knowledge of the time in which the author lived. The style of the work is as clear and sparkling as the waters of Avoca, and the descriptions are as full of light and shade as that famous lough, whose name is derived from its variable skies. This is not the language of hyperbole; it is the honest tribute of unbounded admiration.

With such a mass of original observations as are contained in this volume, it is extremely difficult to single out any one part for special mention, but it may be said that the section on pericarditis really laid the foundation of all subsequent work upon the subject; that Stokes added immensely to the current knowledge of valvular disease; that his conception of the condition of cardiac muscle was most remarkable for the age in which he lived; and that on the subject of aneurysm he contributed many absolutely new facts.

Until the appearance of this work there was a somewhat inadequate conception of the possibilities inherent in the muscular walls of the heart. In this connection the following remark is worthy of quotation:—"It is, then, in the vital and anatomical conditions of the muscular fibre that we find

Digitized by Google

the key of cardiac pathology; for, no matter what the affection may be, its symptoms mainly depend on the strength or weakness, the irritability or paralysis, the anatomical health or disease of the cardiac muscles." [8]

With reference to the relations of pathology and therapeutics, Stokes showed in many parts of his great work the workings of a philosophical mind. Let me quote a few lines from the chapter devoted to the treatment of the organic diseases of the heart.

"It is objected to the pathological science of the present day, that it has been too much occupied with the study of the nature and diagnosis of disease, and too little with its treatment; and the works of the continental physicians are especially pointed out as being fruitful in facts of pathological anatomy, and barren in those of practical medicine. But more has been said on this subject than is, perhaps, just; and we should be careful not to decry the labours of men who have done so much, because they have not effected everything. For medicine is a progressive science, and the pathological anatomist is truly the pioneer of the physician; and the latter, if he desires to advance his science, must train his mind to a higher exercise and a more comprehensive thought than that required for the observation and recording of isolated facts in pathology. He must not only give due weight to the existence of separate phenomena and to the results of combinations of diseases, but he must study conditions which are beyond the reach of the pathological anatomist and learn to ignore the existence even of manifest organic alterations. While he bears in remembrance the ascertained facts supplied by modern investigation, he is to go beyond them, having an eye to the general rather than the particular, and to found his diagnosis, prognosis, and treatment on that broad basis which includes not alone the effects, but the causes and special modifications of disease. Thus only can the new

Digitized by Google

medicine be advantageously combined with the old. Thus only can that kind of skill which is, as it were, the instinct of the thinking man, be produced—the true *mens medica*—enabling us to act rapidly and successfully in opinion and practice, unconscious, too, of any effort of memory or complicated reasoning process. This is the great *desideratum* in medicine when we are called on to deal with varying combinations of local diseases and general morbid conditions. Accurate observation and accumulated experience are necessary for its attainment; and yet it is more accessible to some than to others. A few, indeed, seem incapable of acquiring it; and hence it is that, with a more limited experience, the mind of one man shows more brightly than that of another. In medicine we have to deal with ever-varying phenomena; the vital condition of organs cannot always be inferred from their physical state, nor the influences which act on the entire economy be explained by anatomy. Were it otherwise, medicine would be an easy pursuit, but no field for this exercise of mind, which is at once its difficulty and its glory." [9]

As regards the treatment of disease, the author is always wise, but his views, in addition, were far in advance not only of his own age, but even of many distinguished men in our own period. This is notably the case as regards the use of exercise. Nothing, for instance, could be better than the following paragraph in regard to the treatment of incipient fatty disease :—

"We must train the patient gradually but steadily to the giving up of all luxurious habits. He must adopt early hours, and pursue a system of graduated muscular exercise; and it will often happen that after perseverance in this system the patient will be enabled to take an amount of exercise with pleasure and advantage, which at first was totally impossible, owing to the difficulty of breathing which followed exertion. This treatment by muscular exercise is

Digitized by Google

obviously more proper in younger persons than in those advanced in life. The symptoms of debility of the heart are often removable by a regulated course of gymnastics or by pedestrian exercise, even in mountainous countries such as Switzerland, or the highlands of Scotland or Ireland. We may often observe in such persons the occurrence of what is commonly known as 'getting the second wind,' that is to say, during the first period of the day the patient suffers from dyspnœa and palpitation to an extreme degree, but by persevering, without over-exertion, or after a short rest, he can finish his day's work, and even ascend high mountains with facility." [10]

When speaking thus of the work of Stokes it must be added that the remarks which have just been made do not make any attempt to exhaust the contributions of the author. In the second portion of this address an effort will be made, under the heads of particular affections, to mention the contributions which he made to each respective subject.

In taking leave of this historic volume let me state that the great author throughout his whole work manifests a magnanimity of mind quite as remarkable as the generosity of feeling exhibited by Graves. So deep, indeed, have been my obligations to this immortal work—which, it may be added, saw daylight in the year of my birth, and a copy of which has been my companion since my undergraduate days—that it may be regarded, if the phrase be permitted, as my cardiac bible.

The work of Bellingham,[11] the first part of which appeared one year before and the second three years later than that of Stokes, was conceived in a comprehensive spirit and undertaken with singleness of purpose. It is a singularly complete work, characterised by perfect candour, and written in a spirited manner. It contains a considerable number of entirely original observations on the anatomy, physiology and

Digitized by Google

pathology of the heart, on the methods and results of physical examination, on modes of treatment and their effects, and more particularly on the subject of aneurysm, the modern treatment of which was really founded by the author. To many of these, which saw daylight previously in various journals, but more especially in that edited by his friend Jacob, it will be necessary to refer in the sequel. Meantime, let me remark that it is impossible to read Bellingham's work without feeling that he must have been a man of generous instincts, seeing that on almost every page he pays a tribute of graceful homage to his contemporaries, not merely in Dublin, but in other great medical schools.

The treatise of Hayden [12] constitutes one of the most faithful, industrious, and painstaking contributions to the literature of cardiac disease, and for all time it will remain a store-house of facts as regards the state of knowledge at the conclusion of the third quarter of last century. Upon the subjects of physiology and pathology, the author furnishes very adequate summaries of the views then existing, and gives the results of certain original investigations carried out by himself. From the clinical point of view the work, however, is still more valuable, as it contains a vast mass of information, largely based upon personal observations, but culled also from the work of others who have laboured in the same field. In his presentation of the labours of other observers, and in his comparison of these results with his own, the author shows excellent judgment and perfect justice. A number of Hayden's contributions will be referred to in the second part of this address, and it need only now be added that he has laid his successors under heavy obligations by his indefatigable labours and honest endeavours.

Although we cannot claim it as directly emanating from Ireland, yet, as its eminent author belonged to a Hibernian family, we must regard the famous work of Walshe [13] as really

Digitized by Google

and truly due to your country. This work was at once analytical in its tendencies and encyclopædic in its scope. Every subject which Walshe touched he adorned, and his book is at once valuable as an exposition of modern medicine and brilliant as an example of lucid writing. The work, at first devoted to the lungs as well as the heart, became separated into two volumes by a process analogous to one of the lowly forms of reproduction, and that concerned with the circulation reached a second edition in its independent condition, or the fourth edition from its real commencement,[14] as did also the companion volume on the diseases of the lungs.[15]

Inasmuch as it touches upon certain problems connected with the circulation, it is necessary to refer to one of the many brilliant works of Haughton.[16] That distinguished and versatile man, amongst his multifarious interests—clerical, mathematical, chemical, educational, and administrative—produced his "Principles of Animal Mechanics" in 1873. In this most attractive and interesting volume there is a most felicitous section on the mechanical work done by the human heart,[17] in which are to be found most careful calculations of the results of cardiac energy, and another admirable portion on the heart muscle.[18] Although it is scarcely germane to the subject of this address, it is scarcely possible to pass by without remark the intense humour displayed by the gifted author in dealing with the forces exhibited by the uterine muscle. In this last-mentioned passage the researches of Matthews Duncan and Tait [19] are fully analysed.

The two little works of Jolliffe Tufnell[20] on aneurysm must be mentioned here. In his first he deals chiefly with the treatment of external aneurysm by means of compression—a subject which had been inaugurated by Bellingham. In his second work, piously "dedicated to the memory of O'Bryen Bellingham," he fully explained the results of the treatment proposed also by Bellingham, but more systematically carried

Digitized by Google

out by himself, by means of absolute rest and restricted diet. The word "little" has been employed in reference to these two works of Tufnell, but it applies only to the size, not to the value, of the volumes, and it is impossible not to agree with the author when he says [21] that his observations "represent in a few pages what might have extended into 'a book.'"

In addition to the works of these great masters of the last and the previous generation, you will permit me to refer to another volume of much more recent times: Lindsay's admirable work,[22] although mostly devoted to affections of the lungs, contains some very interesting chapters upon the circulation. The section on diagnostic problems in heart disease may be mentioned particularly as containing a most excellent statement of some of the difficulties attendant upon cardiac diagnosis. With the general results of Lindsay's observations most of us will, doubtless, be in hearty accord; while he does not lay too much stress upon the presence of changes in the heart sounds, he also brings into prominence the necessity of estimating in so far as possible the condition of the heart muscle, but does not go so far as the modern French school in minimising the value of auscultation. When discussing the treatment of cardiac disease the author makes extremely wise remarks, not merely on the general management of such conditions, but on the treatment of special symptoms. Like most of us in this age he agrees with Allbutt and Little in recommending the use of morphine in cases of restlessness due to cardiac disease, and again, like the majority of thoughtful observers, he takes a cautious view of the Nauheim treatment.

Having thus, as briefly as possible, made these remarks upon well-known works, let me ask you to turn with me, in the second place, to an outline of the original observations contributed by the Irish schools of medicine to various branches of investigation connected with the circulation. It is quite

Digitized by Google

impossible to make this sketch complete within the compass of a single address; but, in so far as lies within my power, it will be my duty to bring forward the chief original contributions arranged in accordance with their different subjects. In attempting to do this it will be advisable, in the first place, to take up subjects bearing on the circulation in general before passing on to consider those which deal more especially with its particular aspects.

So far as is known to me, the first observer who had an adequate conception of the cause of the second sound of the heart, as we now understand it, was Carlile.[23] As is generally recognised, the second sound was completely misunderstood by Laennec and his immediate followers, but it is perfectly obvious that Carlile had absolutely correct views upon this subject.

The Report of the Dublin Committee of the British Association,[24] published in 1835, demands a passing reference as being representative of the most advanced views of the day. One point may be mentioned in connection with this subject. As is well known, Corrigan had somewhat heterodox views for a time in regard to the events of the cardiac cycle, but, as these were discarded by him at a later period, no further notice need be taken of them.

Paton[25] communicated two papers upon the action of the heart, the chief characteristic of which was that he fell foul of Gairdner over the question of the presystolic murmur. Quain,[26] in his later years, published a paper upon the movements and sounds of the heart which was eminently unorthodox, and which, as it caused but little attention, does not require us to linger. With regard to the work of the heart, an admirable methodical analysis of the work done by the heart was published by Haughton,[27] whose earlier observations upon this subject have already been mentioned.

Corrigan's papers[28] on "The Origin and Causes of the Sounds

Digitized by Google

and Murmurs of the Heart and Blood-vessels " were absolutely original and profoundly effective. In this important contribution he not only showed that murmurs were produced in a body of moving fluid passing from a narrower into a wider lumen, but he traced out the whole methods of conduction of such murmurs. It is not too much to say that in this way he absolutely laid the foundations of our modern knowledge, and that, with a few slight exceptions, but little has since been added upon this subject. As an example of the clear views entertained by their gifted author, the following passage may be cited. Dealing with pressure on the femoral artery, he remarks :—

" In this experiment the artery beyond the point of pressure is no longer tensely distended; for the discharge or waste through the branches being greater than the supply through the narrowed portion, the supply is consequently not sufficient to keep the artery tensely filled; the artery thus becomes in some degree flaccid, and the moment it becomes so, is acted on by the impulses of the particles of the fluid in motion within. The motion of the fluid within we have now to consider. The stream of fluid issuing from the constricted or narrowed portion of the artery as it escapes into the wider portion beyond assumes the form of a current, the particles of which rush along with very different degrees of velocity. The particles in the centre being impelled with the greatest velocity, while those towards the sides are moving with varying and diminished velocities, whirling or currents are thus produced, which impinge upon the sides of the artery and cause in them corresponding and extremely rapid vibrations : and when the finger is laid upon the artery thus circumstanced, the thrilling vibration of its parietes is perceptible with touch, and is the *bruissement* of Corvisart, the *frémissement* of Laennec, and upon the ear is made the impression to which we give the name of *bruit de soufflet.*"

Digitized by Google

Corrigan applies this explanation to disease of the mitral and aortic orifices; to the gravid uterus; to varicose aneurysm; to aneurysm by anastomosis; to sacculated aneurysm; to vessels after hæmorrhage; and to cases of nervous interference with the vessels.

Nagle wrote on the motions and sounds of the heart,[29] showing the difficulties attendant on the application of new methods, and afterwards made an attack[30] upon Corrigan's views as regards the causation of murmurs, in which he referred to a previous paper of his own which appeared in the *Lancet* two years after Corrigan's;[31] the result of this, as of other attacks, however, has simply been to seat the contribution of Corrigan more firmly in the admiration of all scientific men. It is pleasant to notice that many subsequent contributions upon similar subjects have emanated from the Dublin Medical School. Amongst these must be mentioned the paper of O'Carroll[32] on the second sound, of Nixon on functional aortic regurgitation,[33] on functional pulmonary murmur,[34] on functional mitral murmur,[35] and on organic mitral murmur,[36] and of Travers Smith[37] upon functional cardiac murmurs: the last-mentioned of which was communicated to this Section of the Royal Academy of Medicine at its most recent meeting. Comparatively early O'Ferrall[38] carefully studied the vanishing of murmurs in late stages of mitral disease.

The relation of the pulse to posture was the subject of very careful investigation at an early date by M'Donnell[39] and Graves,[40] the observations of the last-mentioned author being most perspicuous and complete. Another paper on the same subject by Travers Blackley[41] deserves mention.

Infrequency of the pulse in cases of myocardial degeneration was described by Adams[42] and afterwards by Stokes,[43] while more recently Hayden[44] reviewed the whole matter. How the modern conception of this affection has grown out of these early Irish observations will be told in the sequel.

Digitized by Google

Two excellent series of papers on the general pathology of the heart were published by M'Donnell[45] and by Lyons[46]; these papers are of real value. The interesting contribution of Little,[47] on the mechanism of cardiac dropsy, is worthy of close study. In this contribution the author recalls the fact that, while valvular disease and ventricular dilatation are recognised causes of dropsy, yet it is known that patients may have both conditions and yet not become anasarcous; he shows that there must, in addition, be some factor, and he emphasises the hydræmia and the changes in the blood-vessels as probably powerful agents. When it is remembered that this paper was published before the appearance of Cohnheim's work on general pathology it will be recognised how far-seeing its author is.

Amongst the contributions bearing upon the heart itself there were, in the early days of last century, some excellent contributions upon symptoms. Dealing with palpitation Percival,[48] in 1817, pointed out that tea was a fertile source of the troublesome symptom, but he also showed that in some cases the condition might be relieved by the use of tea. Corrigan[49] gave, in 1841, a careful analysis of various forms of palpitation and other nervous derangements, while Bellingham[50] added some facts, previously but little recognised, as regards its dependence on certain structural changes. Connected with this subject may be noticed the interesting paper by Faussett,[51] in which he emphasised the presence of throbbing of the aorta in the epigastrium—a very excellent contribution upon the subject. Also allied to this subject is the valuable paper of Magee Finny on tachycardia,[52] and the more recent contribution of Travers Smith[53] on tachycardia and epilepsy. An admirable investigation of bradycardia, to be afterwards spoken of, was published recently by Magee Finny.[54] Of papers on angina pectoris there have been comparatively few. The earliest appears to be one by Cuming[55] in 1822, giving a graphic account

Digitized by Google

of its symptoms, but, as might be expected of that period, without any very complete examination of the heart. Ten years later Newton [56] contributed an interesting article upon the subject, and, in 1837, Corrigan [57] published a paper characterised by all his clinical acumen. It is interesting to notice that he regarded aortitis as a potent cause of the affection. This, as we all know, has recently been emphasised by Clifford Allbutt [58] as one of the most important factors in the production of angina pectoris. An acute paper on the association of angina pectoris with organic disease of the heart was published by Bellingham; [59] a careful study of angina pectoris in infectious diseases was made by John W. Moore,[60] and an interesting historical account of the symptom was contributed by Knott.[61]

The cerebral symptoms of cardiac disease were analysed with much perspicuity by Law [62] in 1840. Not only did this author give a full account of the important cerebral manifestations produced by disturbances of the circulation, but he laid down most excellent regulations for their treatment. He was followed by Hudson,[63] who entered upon a detailed examination of the delirium of heart disease in a valuable contribution.

Alterations in the position of the heart, which had been studied by Stokes [64] and Croly,[65] occupied the conscientious assiduity of Hayden [66] for some time, and his work on the heart contains an elaborate and valuable contribution on displacements of the heart. This part of his work is not merely of importance on account of its clinical investigations, but it is of even greater value on account of the experimental work by which it was accompanied and upon which a number of the author's conclusions were based.

Congenital affections of the heart do not occupy so much attention as might have been expected. There are, nevertheless, some important contributions upon this subject. Congenital smallness of the heart as a whole was elaborately studied by Bellingham.[67] Mayne [68] described, in 1841, an

Digitized by Google

instance of imperfect interauricular septum, with patent ductus arteriosus, mitral constriction, tricuspid dilatation, and atrophic left ventricle, and an enormous dilatation of the right ventricle. Houston [69] described an acardiac fœtus, the chief point of his papers being that he combats the views of Marshall Hall. The increase of cyanosis on exertion did not escape the acumen of Corrigan.[70] Questions connected with patency of the foramen ovale and cyanosis were discussed by Foster,[71] while mitral malformations occupied the attention of Banks [72] and Mayne,[73] and deformities of the pulmonary valves, characterised by the existence of two cusps only, were described by Graves [74] and Foot.[75] An extremely rare cardiac malformation was fully investigated by Birmingham and O'Carroll.[76]

Amongst symptoms connected with the circulatory system periodic breathing must be mentioned. Described by Cheyne,[77] and later by Stokes,[78] who both regarded the symptom as connected with fatty heart, it was shown by Seaton Reid [79] to occur in cases showing no trace of fatty changes in the myocardium. This symptom was fully discussed by Head,[80] and it was the subject of a most interesting paper by Little,[81] in which he promulgated a very ingenious theory in which the cause was sought in a want of correspondence between the actions of the two sides of the heart. This theory was accepted, with modifications by Benson.[82] All these observations have been thoroughly analysed by me [83] in a former work.

Law [84] was one of the early observers who discussed questions of metastasis of rheumatism from the joints to the heart in the days when the facts were arousing interest for the first time.

Pulsating empyema attracted the attention of M'Donnell [85] and also of Stokes,[86] while pulsating pneumonia was thoroughly investigated by Graves.[87]

Upon affections of the pericardium the literature emanating

Digitized by Google

from the Irish schools was, in early days, exceedingly rich. Although, as is well known, the sound of friction was heard, yet misunderstood, by Laennec,[88] and for the first time definitely explained by Collin,[89] it attracted but little notice until the observations of Stokes, Corrigan, and Graves. The first of these three observers was the earliest to give,[90] as the result of an exhaustive examination, full details of the auscultation, and to point out the value of friction as a means of diagnosis. His original paper is one of the most important contributions ever published on the subject of pericarditis. Somewhat later the author discovered and described the occurrence of friction which could be felt when the hand was applied to the præcordia,[91] and he also made it quite clear, in another paper,[92] that fluctuation was sometimes present in pericardial effusion. Corrigan[93] gave an excellent account of auscultation in pericarditis. The pulse changes produced by pericardial inflammation were carefully studied and fully described by Graves.[94] To Graves is due the first clear conception of pneumo-pericarditis,[95] and the quite unique case of this affection produced by abscess of the liver still remains a model of concise description. Mayne[96] made some observations of high value upon pericarditis in general, and more particularly directed attention to the symptom of pain in the epigastrium, which had been previously described by Abercromby.[97] Smith[98] described adherent pericardium with calcification and cardiac atrophy, and a careful study of obliteration of the sac was made more recently by Archer.[99] Hudson[100] called attention to the possibility of error in diagnosis due to the presence of friction from mediastinal emphysema, and Corrigan showed that on change of posture there was an alteration in the localisation of the friction in pericarditis. Another most philosophic observation was made by Corrigan,[101] when he showed that the exudation in pericarditis was largely caused by the movements, and recommended opium as a

Digitized by Google

sedative. In some degree he was thus the forerunner of Hilton.[102] Tuberculous pericarditis received thorough analysis at the hands of Kennedy,[103] who terms it strumous pericarditis, and since the date of his paper it has always been recognised as one of the forms of pericardial disease. In connection with this subject the name of Bellingham[104] must not be overlooked, as he added considerably to the interest aroused in pericardial conditions. Paracentesis of the pericardium was fully discussed about thirty years ago by Nixon.[105]

Of contributions on endocarditis, Mayne's paper[106] on intra-uterine endocarditis affecting the left side of the heart was a distinct advance. Many papers have since appeared in the Irish annals upon endocardial inflammation, amongst which may particularly be mentioned the important articles of Purser,[107] Little,[108] O'Carroll,[109] Smith,[110] Nixon,[111] Burgess,[112] and McWeeney.[113] In these valuable contributions the various forms of endocarditis are fully described, and their relations amply discussed. In the more recent of these papers the bacteriology of the condition, as might be expected, is a very important feature.

Rupture of the cusps was carefully studied by Quain,[114] who, though not a member of any Irish School of Medicine—geographically speaking—was, like Walshe, of Irish descent. A cribriform condition of the cardiac valves was discussed by Bellingham,[115] and a melancholy interest attaches to this paper, for it was the last which he published, just six months before his death.

The invaluable contributions of Corrigan to the subject of cardiac murmurs have already been fully mentioned. They were followed by several other important contributions. Leared[116] devoted his attention to the whole subject, and about the middle of last century, produced the result of his important investigations. Cuming[117] gave a masterly analysis of functional cardiac murmurs, and shortly afterwards pub-

Digitized by Google

lished some further remarks, especially on the propagation of murmurs. Nixon[118] dealt fully with dynamic murmurs, and Hayden,[119] in his comprehensive volume, gave a full, fair, frank discussion of the whole subject, being especially valuable upon the presystolic mitral murmur. On the vanishing of murmurs O'Ferrall's[120] paper deserves notice. A curiosity in the way of type was the trumpet sound described by Corrigan.[121]

In dealing with special diseases of particular valves it is natural to begin with the aortic valve, that cardiac outpost, and here we meet one of the greatest contributions to practical medicine ever contributed by a single writer. Corrigan's celebrated paper on aortic disease was contributed to our Edinburgh Journal,[122] and, speaking as one of its former editors, it remains one of our greatest historic possessions. In this most luminous contribution Corrigan describes the visible pulsation of the arteries, the special features of the radial pulse, and the characteristic murmurs of the disease. He emphasises the dangers of giving digitalis in aortic incompetence, a doctrine with which some of us are nowadays rather inclined to disagree, and he passes some strictures on misguided attempts to defeat nature which command our admiration.

Bellingham[123] was of opinion that roughening of the aorta in default of all valvular disease could give rise both to systolic and diastolic murmurs. Barr[124] published for the first time, so far as is known to me, very excellent anacrotic tracings in aortic disease, and Power[125] narrated a case of the disease with atresia of the abdominal aorta and iliac arteries compensated for by enormous development of the internal mammary and epigastric arteries on both sides. It seems to be only right to point out that Law[126] made some observations of real value upon the lateness or absence of dropsy in aortic disease at a comparatively early period, while the results of aortic

Digitized by Google

lesions on the mitral cusps were very carefully observed by Nixon.[127]

With regard to mitral disease, let me premise that in the admirable paper of Adams,[128] to which full reference will afterwards be made, he anticipated much of the work which has been done later upon this subject. Excellent papers of a comparatively early period are those of Law[129] and Lees.[130] M'Dowel[131] analysed the different forms of mitral obstruction in a skilful way. Purser[132] speculated upon the production of the presystolic murmur, and expressed the view—which commends itself to but few of us—that it might be possible for such a murmur to be produced by a powerful auricle in the presence of a dilated ventricle with a normal mitral orifice. Hayden[133] gives a most masterly analysis of the whole subject of mitral disease, and may be said to take rank along with Gairdner,[134] Balfour,[135] and Hilton Fagge[136] upon this subject.

Rupture of the chordæ tendineæ as a cause of mitral disease was very fully described by Gordon,[137] and ossification of the cusps by Head.[138] Two admirable studies in more recent times were made by Magee Finny.[139]

Affections of the tricuspid orifice owed much as regards their elucidation to the originality of Adams,[140] and in the sequel this matter will be fully referred to. The safety-valve action of the cusps at the right auriculo-ventricular orifice were fully understood by this distinguished author, and they have since been frequently referred to in Irish medical annals. One paper dealing specially with this condition may be referred to in this place—*i.e.*, the contribution of Todd;[141] while the article of Benson on remarkable venous pulsation[142] may be taken as representative of some of the early observations on symptoms produced by inadequacy of the tricuspid valve. As regards the subject of tricuspid obstruction, as is well known, the first case of diagnosis during

Digitized by Google

life, verified after death, was the celebrated instance described by Gairdner.[143] An approximate diagnosis of this condition was, according to Hayden,[144] made by Stokes, and his observations were folowed by important contributions by Little [145] and Cryan.[146] The whole subject was fully reviewed by Hayden,[147] and several cases were described in his systematic work. Quite recently Duffey,[148] whose premature decease we still mourn, described a very marked case of tricuspid, mitral and aortic obstruction.

Amongst contributions on the general condition of the cusps must be mentioned the important remarks of Marsh [149] upon aneurysm of the valves—one of the earliest investigations bearing upon this subject.

Turning to the myocardium, it will be well, in the first place, to consider affections primarily affecting the muscular tissue of the heart, and afterwards to deal with those changes which are consecutive to other circulatory conditions. The work of Stokes [150] in this direction was the earliest, as it was the most important in the United Kingdom. He gives a most graphic description of the clinical features and the pathological appearances of the myocardial changes taking place in fever. Undoubtedly a good deal has been done on this subject since the days of Stokes, but the main lines investigated and described by him remain absolutely true to the present time.

Suppurative myocarditis, which had not long before been studied by Latham [151] and Craigie,[152] was the subject of painstaking observations by Graves,[153] who brought to that subject all the clinical insight and pathological accuracy, of both of which he was a master, as well as by Mayne,[154] to whom we are indebted for some really original investigations.

Morgan [155] devoted some attention to syphilitic infection of the myocardium, showing the varieties which this particular invasion might produce.

Digitized by Google

Fatty changes owe much to Dublin for their elucidation. In M'Bride's work,[156] published in 1772, the condition is described. Cheyne [157] called attention to the pathological conditions in fatty heart, and described the particular type of breathing, ever since associated with his name and that of Stokes,[158] who more closely observed it. Richardson [159] and Kennedy [160] paid much attention to the fatty heart—Richardson's paper is most interesting from the historical point of view—and Quain,[161] in a most masterly article, left but little to be added to the subject. In connection with it the wonderful paper by Adams[162], which has already been mentioned, described the association of extreme infrequency of the pulse with fatty heart, and this was also very fully dealt with by Stokes.[163] The presence of lipæmia occupied the attention of Smith [164] at an early period in the study of such changes. More recently important papers on fatty heart have been contributed by M'Dowel,[165] Kidd,[166] Hayden,[167] Foot,[168] Martin,[169] and Kennedy.[170]

Wounds of the myocardium have occupied the attention of the Irish Schools of Medicine very frequently, and amongst the important contributions to the subject may be mentioned those of Lees.[171]

Amongst the curiosities of morbid anatomy is a singular instance of gastric ulcer leading to such extensive changes as to establish a communication between the stomach and the left ventricle, which was narrated by Magee Finny.[172] This extraordinary case is quite worthy of a place alongside the hepatic abscess causing pneumopericardium described by Graves,[173] and already mentioned.

Many valuable contributions to the study of myocardial changes following on other lesions of the circulation have emanated from Ireland, but there cannot be a doubt that the first place, whether at home or abroad, must be accorded to the great paper of Adams.[174] It is in fact the precursor of all

Digitized by Google

that has been done since on the subject. The dependence of the cardiac muscle upon the coronary blood supply is most clearly enunciated, and the cause of cardiac failure is shown to rest upon changes in these nutrient arteries. The effects, moreover, of valvular lesions upon the myocardium in the production of cardiac dilatation and hypertrophy were most clearly described long before the appearance of the well-known work of Forget.[175] Corrigan[176] undoubtedly shares with Adams the credit for clearness of conception of these relations, and it is a pleasure to be able to point to these two observers as pioneers in this subject. To Banks[177] we also owe our thanks for useful observations on hypertrophy.

Aneurysm of the heart was one of the matters discussed in the memorable paper of Adams[178] already drawn upon, and the occurrence of this condition as the result of myocardial changes occupied the attention of Quain,[179] of Tufnell,[180] and of Bellingham.[181] Spontaneous rupture of the heart is again one of the subjects described by Adams,[182] while Townsend[183] and Bigger[184] have also contributed important papers upon it.

Upon the subject of aneurysm Irish observers have produced many of the most valuable observations ever made. There is such a long list of papers as to render it somewhat difficult to group them with any attempt at systematic arrangement. Leaving out of account altogether mere records of isolated cases, important no doubt in themselves, but not adding materially to the general fund of information, and restricting attention entirely to those contributions containing original investigations and yielding distinct additions to our knowledge, there is still a formidable array of papers. Upon the subject of aneurysm in general the contributions of Graves[185] and Stokes,[186] as well as of MacAdam[187] and Brown,[188] are amongst the earliest of real importance. They were followed by the observations of Lees,[189] O'Bryen[190] and Bellingham.[191]

As regards the clinical symptoms of aneurysm the articles

Digitized by Google

of Greene [192] and Law [193] on its painful phenomena must be mentioned as of importance, while the results of auscultation attracted the earnest attention of Stokes [194] and Bellingham, [195] whose work upon this subject is of the greatest value. The disease was also the subject of excellent work by Lyons [196] and Hayden. [197] A case of Duncan's, [198] in which death was due to pleural transudation without rupture of the aneurysm, is of interest. The general features of the disease were admirably described by Hayden. [199]

To the clinical acuteness of Stokes [200] we owe the first observation of aphonia in aneurysm produced by pressure on the recurrent laryngeal, and Banks [201] followed with further observations upon this subject. It may be said, indeed, that just as Gairdner [202] was the earliest to point out the changes in the pupil produced by the pressure of aneurysm on the sympathetic nerve, so Stokes was the first to call attention to interference with the recurrent laryngeal nerve in this condition.

The recognition of aneurysm of the abdominal aorta was inaugurated by Beatty, [203] whose paper will always remain a landmark. Observations upon this subject were afterwards made by Porter; [204] but the most important additions were made by Corrigan, [205] who called attention to the alteration of the murmur produced by change of posture, and by Seaton Reid, [206] who described symptoms produced by interference with the sympathetic nerve in abdominal aneurysm. The diagnosis of the condition was fully and ably discussed also by William Moore. [207]

Dissecting aneurysm was admirably described by Shekelton [208] in 1822, and to this day one form of the disease is very frequently associated with his name. It has received much attention at the hands of members of the Irish Schools of Medicine, notable amongst whom have been MacDonnell, [209] Magee Finny, [210] and Coleman. [211] MacDonnell's paper is not

Digitized by Google

only enriched by references to the observations of Morgagni,[212] but is embellished by a beautiful plate. Finny's contribution has an admirable description of an extraordinary case, stretching from the thoracic aorta to the iliac arteries.

To the treatment of aneursym the Irish schools have made notable contributions. Passing by the treatment of accessible aneurysms by compression, with which the names of Bellingham,[213] O'Ferrall,[214] Crampton,[215] Cusack,[216] Adams,[217] Harrison,[218] Porter,[219] and Wharton[220] will always be associated without doing more than merely referring to the historic controversy between Dublin and Edinburgh upon this subject, in which the great protagonists were Bellingham[221] and Syme,[222] we can only deal with the management of internal aneurysm. The modern treatment of aneurysm is based beyond doubt upon the principles first enunciated by Bellingham,[223] whose advocacy of absolute rest and careful diet laid the foundation of our modern methods. He was followed in this after a time by Jolliffe Tufnell,[224] whose two works upon the subject have already been mentioned. It is pleasant to note that his second volume is dedicated to the memory of O'Bryen Bellingham. Many other authors followed in the footsteps of these distinguished men, amongst whom may be mentioned Hughes[225] and Lyons.[226] The effect of treatment on the sac was the subject of an excellent paper by Colles.[227]

Aneurysm of the innominate artery, terminating in a favourable result, was the subject of a very important and interesting communication by Craig;[228] the effects of the disease when situated on the descending thoracic aorta were studied by Archer;[229] the last-mentioned author further described[230] the diagnosis of an abdominal aneurysm by rectal examination, which had been accomplished by an American physician named Sands. The simulation of aneurysm by thoracic tumours was adequately discussed by Robert Law Nixon[231] and

Digitized by Google

more recently by Magee Finny.[232] The relation of aneurysm to cardiac hypertrophy, and the frequent absence of any increase in the size of the heart, have been familiar to all since Stokes[233] clearly enunciated the facts; he was followed by Finn,[234] who afterwards dealt with the matter. The influence of aneurysm upon the aortic cusps, rendering them incompetent, was fully investigated by John W. Moore.[235] Double aneurysm was discussed by Chartres,[236] and aneurysm of the pulmonary artery by Bennett.[237] The association of aneurysm with cerebral symptoms was acutely debated by William Moore.[238]

Arteritis was diligently studied by Thompson,[239] whose observations are full of interest.

A very interesting case of constriction of the aorta was fully described and beautifully illustrated in early times by Robert L. Nixon.[240]

One of the most striking contributions to the pathology of the arterial system is to be found in an excellent paper by Purser[241] on narrowness of the aorta, associated with mitral disease, and attended by arrested sexual development. It must be mentioned that this most interesting article made its appearance almost simultaneously with the celebrated paper by Virchow on hypoplasia of the aorta and arterial system.[242]

Arterial obstruction, leading to paralysis from interference with the blood supply was recorded by Graves and Stokes,[243] and these authors may, in respect of this subject, be regarded as supporters of the views of Allan Burns[244] and precursors of Charcot[245] upon the interdependence of the blood supply and nervous energy.

An early paper by Davis in the Hospital Reports[246] gives an excellent account of abnormal movements of the veins, and describes a direct venous current distinctly visible and carried on from the capillaries towards the heart. Graves,[247] a few years afterwards, fully described this interesting phenomenon.

Digitized by Google

It is an open question whether Benson,[248] in an excellent communication upon venous pulsation, really refers to this or to the much more common retrograde venous pulse. The whole subject of direct venous pulsation was fully reviewed by Smith,[249] who believes that Benson really described the direct venous pulse.

The venous hum, or *bruit de diable*, was fully discussed by Bellingham,[250] whose views were rather too mechanical, as he considered it was produced by the pressure of the stethoscope, ignoring or overlooking the fact that it can be heard over the inner end of the clavicle where no pressure can be exerted on the vein.

With further reference to the veins, a want of relation between the movements of the cervical veins and the arterial system did not escape the acute observation of Stokes,[251] as will be more thoroughly shown in the sequel.

With the very shadowy exception of Flajani,[252] but the unquestionable exception of Parry,[253] there cannot be any doubt that the now well-known condition of exophthalmic goître was first observed by Graves,[254] and it is to be hoped that his name will always be associated with the affection, except in Teutonic countries where medical Chauvinism is unfortunately rampant. The original observation of Graves was made in 1835, and was incorporated in the first edition of his "Clinical Lectures." There cannot be a doubt of the vivid accuracy of his description, and it proves how keen was his clinical insight. The first account of the morbid anatomy of this affection is due to Marsh,[355] and various points in the clinical features of the condition were emphasised by MacDonnell [256] and Stokes ; [257] while more recently Swanzy,[258] Foot,[259] and William Moore [260] have made interesting additions to our knowledge.

As regards questions of treatment of heart disease in general, the Irish annals have provided numerous admirable examples of careful observation and thorough investigation. It is

Digitized by Google

almost invidious to single out any individual contributions from amongst the mass of able and valuable work, but there are a few which stand out prominently. Amongst these let me refer briefly to an excellent discussion of mechanical methods in the treatment of dropsy by Marsh,[261] an interesting contribution on rest in the treatment of disease and especially of circulatory affections by Magee Finny,[262] and another paper, at once eloquent and learned, on exercise in the treatment of heart disease by MacCormac.[263] The Nauheim treatment of circulatory affections does not seem to have caused any particular flutter in Ireland, thanks, probably, to the influence of that great master Stokes in keeping Irish physicians alive to the utility of graduating rest and exercise. There is, however, one interesting paper on the methods of Nauheim in recent years by Smyly,[264] in which the author fully considers all the questions involved in these methods.

As regards drugs in the treatment of heart disease, the number of contributions is not large, but extremely valuable. The actions and uses of digitalis were fully discussed by several observers. Little[265] called attention to the extreme value of this drug in the weak heart of acute disease, and Grimshaw[266] followed immediately afterwards with a paper upon the weak heart of typhus fever. Both these authors are to be congratulated on having added observations of much value upon an important subject. Peacocke[267] in recent years reviewed the subject of digitalis, and emphasised its value in cardiac disease. One paper of considerable value on the employment of mercury in heart disease was contributed by Beatty,[268] which is of much interest. A lecture of particular importance and especial utility on the treatment of heart disease in general, by Little,[269] merits more than a passing reference. The author deals with patients from the point of view of age, dividing them into young, middle-aged, and elderly; he then reviews the causes of heart failure; he

Digitized by Google

finally discusses very fully the various remedies we possess for meeting the different exigencies. It is of much interest to note that, in addition to the careful regulation of rest and exercise, food and drink, the author expresses his special approval of blood-letting, mercury and digitalis; he urges the importance of Baillie's pill—which erroneously receives the name of Guy in our days; he does not consider strophanthus as being so useful as digitalis, and he has doubts about the efficacy of alcohol and arsenic. Restlessness and sleeplessness are fully discussed, and Little urges the use of opium or morphine, the modern employment of which he rightly attributes to Clifford Allbutt.[270] Conditions of high pressure receive adequate attention, and means of [illegible] them are carefully described. In connection with angina pectoris, the author emphasises the importance of the kidneys.

SEP 7 1901

In the third and concluding part of this address it is my intention to trace the growth of our knowledge in respect of two particular subjects connected with the circulation, upon both of which the contributions of Ireland have been of the highest value. The first of these is concerned with the action of the valves on the right side of the heart, and their relation to those of the left. As is widely known, Galen[271] was of opinion that the tricuspid was more powerful than the mitral valve, being obviously led to this conclusion by the fact of its having an additional cusp. This error remained until the advent of Harvey, who most clearly showed that the valves on the left side of the heart are more accurately closed than their fellows on the right. His words are so clear in regard to this matter that they deserve to be recalled:—

"Ideo in sinistro ventriculo, uti ad majorem impulsionem diligentior occlusio fiat: duo tantum sunt instar mitræ, ut exactissime claudantur et longe in conum per medium pertingentes (quæ res imposuit forsan Aristoteli ut hunc ventriculum duplicem sectione per transversum facta existimaret) similiter

Digitized by Google

profecto ne retro in arteriam venosam labatur sanguis, et exinde robur sinistri ventriculi exoluatur, in propellendo per universum corpus, ideo valvulæ istæ mitrales molo, et robore, et exacta clausura, illas in dextro positas exuperant." [272]

Hunter,[273] from anatomical researches, proved that the conception of Harvey was correct, and Adams,[274] in that wonderful contribution to which reference has already been made, amply illustrated and emphasised this conception. His work, indeed, placed the whole subject upon such a footing as to render it beyond all doubt that Nature has intended to permit an easy escape through the valves of the right side of the heart, when exposed to any severe stress. In a paper often quoted since, King[275] described what he termed the safety-valve function of the tricuspid orifice. With the exception of the philosophical observations of Adams and King, the most valuable contribution to this particular subject is that of Stokes.[276]

In addition to the statement of his views in the section of his work on affections of the right side of the heart Stokes[277] has the following clear enunciation in the *recapitulation* at the end of the chapter :—

"24. That the most frequent result of disease of the right auriculo-ventricular valves is but the exaggeration of their natural insufficiency."

On the Continent of Europe Gouraud[278] was probably the earliest to make any independent observations upon this subject; these, however, have been comparatively little noticed.

Such were the observations which had been made up to the time when the matter attracted my attention. It occurred to me that it might serve a useful purpose to discover experimentally what amount of pressure would be necessary to bring about incompetence of the valves on the right side of the heart.[279] The experiments were carried out by means of a

Digitized by Google

column of fluid—a solution of sodium chloride of 1050 specific gravity at 98.5° Fahrenheit—brought to bear upon the cusps under investigation. The general results showed "that from the semilunar valves of the pulmonary artery of the sheep a strong jet escaped until the column of fluid reached fourteen and a half inches, from which height it trickled until the valves became competent with a column of nine inches. In the ox a strong jet was emitted down to twelve inches, and dropping of the fluid reduced the superincumbent column to the height of six inches, when competence was established. In the healthy human heart a jet escaped down to thirteen inches, and the valves were competent with eight inches of fluid resting on them. Now, in each case of the pulmonary valves, with a column of fluid exceeding six feet in height, perfect competence was obtained in a very simple manner by constricting the pulmonary artery. A cord tied round the artery exactly at the attachment of the valves gave the means of perfect control over the escape, so that, by varying the amount of tightening, the jet was converted into a drop falling quickly or slowly, and this in turn was totally stopped. The whole diminution of circumference only amounted to a few lines. This shows clearly that the escape is caused by distension of the elastic artery and relative incompetence of the valves.

"From the tricuspid valves of the sheep a strong triangular jet spouted out, with a column of fluid over thirteen inches in height, and from this point the fluid slowly escaped by flowing over the valves until all escaped. In the ox the jet ceased when the column of fluid fell to ten inches, and from this point the fluid likewise ran out. In the healthy human heart the triangular jet gushed out until there were twelve inches of fluid left, and then the remainder flowed over the valves. The valves closing the right auriculo-ventricular orifice, therefore, seem always incompetent after death

Digitized by Google

Now, it is quite evident that experiment on the heart after death cannot be applied rigidly in explanation of action before death, yet a certain amount of light may be thrown thereby on it. Such experiments show with certainty that the orifices of the right side of the heart are not closed so perfectly as those of the left, and point to the ease with which they probably allow escape with any supernormal pressure."

The correctness of these views as regards the pulmonary valve has been amply proved by the later clinical observations of Graham Steell,[280] Dyce Duckworth,[281] Barr,[282] and myself.[283] Each of us has placed on record instances of purely functional pulmonary incompetence from high pressure in the pulmonary artery, and the matter may be dismissed as of universal recognition. As regards the tricuspid orifice, there is considerable divergency of opinion, but my statement[284] that regurgitation at the tricuspid orifice—formerly regarded as infrequent—is now admitted to be the most common valvular affection has been generally accepted, notwithstanding the contrary opinion of Babcock.[285] It certainly is accepted by those writers whose work is held in highest esteem. Tricuspid incompetence is often proved by nothing more than a slight systolic murmur in or about the conventional area of auscultation, but there are frequently other attendant appearances, especially connected with the veins of the neck. There cannot be a doubt that Mackenzie[286] is perfectly correct in his contention that tricuspid incompetence may co-exist with every gradation of venous pulsation in the jugular veins, from a perfectly normal auricular type to the most pronounced ventricular reflux. It is undoubtedly disappointing to find, however, that in some of the most modern works published in certain countries, the facts just mentioned have scarcely yet received adequate recognition. Rosenbach,[287] for example, recognises the existence of relative incompetence, but seems

Digitized by Google

not to consider it more common on the right than on the left side of the heart; in fact, he speaks of isolated tricuspid incompetence as very rare. He, nevertheless, acknowledges the utility of escape at the tricuspid orifice in left-sided disease. Although von Jürgensen [288] allows relative incompetence to be more common at the tricuspid orifice than elsewhere, he yet states that, with very rare exceptions, incompetence of the tricuspid valve is only part of general cardiac inadequacy. Krehl [289] undoubtedly shows a good grasp of the principles of muscular inadequacy, but he does not appear to appreciate how much more common relative incompetence is on the right side of the heart than on the left. According to Romberg [290] tricuspid incompetence is almost always associated with other valvular lesions, but he apparently does not know of any regurgitation at this orifice except that which is accompanied by the ventricular venous pulse, and fails to recognise the significance of Mackenzie's demonstration that the auricular merges gradually into the ventricular venous pulse, the tricuspid valves being incompetent throughout. It seems to me rather doubtful whether Hirschfelder,[291] in an extremely good paper recently published, has really grasped the significance of Mackenzie's observations on the existence of tricuspid regurgitation with simple auricular as well as retrograde ventricular venous pulsation. Preble [292] is in a much worse case, for he appears to me absolutely ignorant of all the work which has been done on the subject of relative incompetence of the valves of the right side of the heart. Albrecht [293] comes much more nearly to a correct understanding than any other modern German author, and attributes the greater frequency of the right-sided incompetence to two causes—first, a deficiency in the sphincter surrounding the tricuspid orifice; and secondly, the comparative shortness of the cusps. From these references it is, therefore, clear that a certain number of modern observers are still considerably

Digitized by Google

behind Adams and the other early workers in our own country upon this subject.

The esoteric meaning of the condition is to be found in the observations of Gaskell, Keith, and Mackenzie. In Gaskell's remarkable paper [294] on the functions of the heart he pointed out that these must be subdivided into rhythmicity, conductivity, excitability, contractility, and tonicity. The function of tonicity has been analysed very fully in the beautiful investigations of Keith,[295] and applied to the elucidation of the pathological problems connected with the heart. He has shown that certain of the fibres in the lower vertebrates have not only discharging but regulating fibres which can maintain their tonicity even after the ventricular fibres have passed into a state of diastole. He holds that this seems to be the case also in the mammalian heart. From the clinical point of view changes in the function of tonicity have been most carefully studied by James Mackenzie.[296] Mackenzie has been able to prove, moreover, in his admirable book, that, as previously mentioned, tricuspid incompetence may be associated with every degree of venous pulsation.[297] The labours of these three distinguished observers form, as it were, a fitting crown to the edifice of which the remarkable observations of the great Adams may be said to have been the foundation.

The other special subject appears to me an even better example of my theme—the growth of knowledge in modern times arising from observations made in Dublin. It is that of the complex of symptoms first described by Adams and by Stokes, and now very commonly associated with their names. As is now universally recognised, Adams [298] described a remarkable infrequency of the pulse, attended by repeated apoplectic attacks, in cases which presented the pathological appearances of fatty heart. Stokes,[299] as is equally well known, extended these observations, and was the earliest to observe

Digitized by Google

the want of synchronism between the movements of the veins and the heart. Stokes says :—" A new symptom appeared—namely, a remarkable pulsation in the right jugular vein. This was most evident when the patient lay down. The number of the reflex pulsations was difficult to be established, but they were more than double the number of the manifest ventricular contractions. About every third pulsation was strong and sudden, and could be seen at a distance ; the remaining waves were much less distinct, and some very minor ones could be perceived. These may have possibly corresponded with those imperfect contractions already noticed in the heart." It is of the greatest interest to remark that Stokes heard feeble sounds between the cardiac impulses. In all probability some of these were due to auricular action. Another most interesting point in regard to this case is that the patient discovered for himself that if there was any threatening of a cerebral attack it could be warded off by turning on the hands and knees and keeping the head low.

For many years after the date of Stokes's observations no further notice, except a passing reference by Skoda,[300] was taken of the matter, but, in 1868, Leyden[301] aroused new interest in the subject, and was followed by Roy.[302] The opinions of these observers were in favour of hemisystole as the cause of the asynchronous action of the veins and arteries. Meantime, the epoch-making work of Gaskell[303] occurred, proving that interference with the conduction of impulses from the auricle to the ventricle is possible, or, as he himself puts it, " that a block can be produced, either by artificial section of the auricle or by an increase in the natural block at the auriculo-ventricular junction, such that only every second contraction which starts from the sinus passes over the block."[304] Chauveau[305] analysed a case showing the dissociation of auricular and ventricular rhythm. Vaquez and Bureau,[306] in an excellent study of cardiac, radial, and jugular

Digitized by Google

pulsations, showed that there was a want of harmony between the auricles and the ventricles. Moritz [307] pointed out that the small pulsations in a cardiogram, occurring at the same time as the elevations in a jugular pulsation, were due to auricular contraction. His [308] demonstrated that the heart-block could be caused by a lesion of the ventricles, by interference with the vagus nerve, or by damage to the conducting fibres. Lichtheim [309] published tracings from a case in which three jugular pulsations occur for each apical and radial impulse. Mackenzie [310] clearly demonstrated complete heart-block, and attributed the little waves in the radial tracing to auricular systole—an explanation fully accepted by Wenckebach.[311] Similar facts have also been published by Osler,[312] myself,[313] Erlanger,[314] Gossage,[315] Ritchie,[316] Hering,[317] Schmoll,[318] Hay,[319] Rihl,[320] Belski,[321] Leuchtweis,[322] Finkelnburg,[323] and Magee Finny.[324] All the authors who have been mentioned are clearly of opinion that the cause of the appearances lies in the existence of heart-block. It is only right to add that Hoffmann [325] is somewhat doubtful about the occurrence of heart-block in such cases, while Webster [326] is rather in favour of an abortive systole of the ventricle as their cause, and Jaquet [327] is absolutely antagonistic to the theory of heart-block.

In addition to the investigation of the movements in those cases by the graphic method, it is of interest to dwell for one moment upon the sounds which have been heard by several of us who have been engaged in observing cases of the kind. The existence of auricular sounds was demonstrated by Malet and myself.[328] In most cases of heart-block which have been under my observation during the last five years these auricular sounds have usually been present, and by many of the observers just mentioned the sounds produced by the auricular systole have also been recognised.

Another important means of investigation is to be found in radiography. Magee Finny,[329] Brouardel and Villaret,[330] and

Digitized by Google

Ritchie,[331] independently of each other, took advantage of the fluorescent screen in order to watch the movements of the heart, and in their three contributions to the subject they published the interesting fact that the auricles could be seen beating several times in the intervals between ventricular systole. This fact has been verified in several cases by myself, as mentioned in the debate at Toronto last year.[332]

The electro-motive changes produced by the systole of the heart have furnished another means of investigation. Einthoven,[333] by means of his string galvanometer, has obtained in heart-block beautiful tracings, which show the electro-motive changes caused by the action of the auricles entirely dissociated from those caused by ventricular action. At the same time, but in ignorance of Einthoven's important investigations, the subject of electro-motive changes in heart-block also engaged my attention.[334] My own observations were carried out by studying the electric variations with Lippmann's capillary electrometer. The movements of the column of mercury, when thrown upon the screen by means of a projection microscope, show the ordinary oscillations caused by the electric changes accompanying the apex beat, and between these other smaller waves are distinctly visible, which are clearly due to the electro-motive changes produced by the auricles.

Another point which has attracted my attention is the investigation of blood pressure in heart-block.[335] The result of observations on four or five cases is to show that the systolic pressure may be as high as 270, while the diastolic may at the same time be as low as 75 mm. Hg. This is assuredly a most interesting fact, showing that the long interval of time following each ventricular beat allows the high arterial pressure to fall to a low ebb before the succeeding systole occurs. [Tracings of all these clinical phenomena were shown at the close of the address.]

Digitized by Google

As is well known to all, the anatomical explanation commenced with the observations of Gaskell,[336] who showed that there was a direct and continuous connection of the sinus, the auricle, and the ventricle. The fact was afterwards more fully investigated by Stanley Kent,[337] His,[338] Ewald,[339] Retzer,[340] Braeunig,[341] and Humblet,[342] but during the present year (1906) the facts have been very thoroughly investigated by Tawara,[343] who carried out a long and valuable research in the laboratory of Aschoff, as well as by Keith and his assistants.[344] The observations of Tawara, showing the course and relation of this band and demonstrating how it is continued by Purkinje's fibres throughout the whole heart, are worthy of the closest study.

From the physiological point of view Erlanger[345] has contributed the most important researches on this subject, and has shown by a most ingenious method how varying degrees of pressure upon the auriculo-ventricular band can produce different degrees of partial or absolute heart-block.

These anatomical and physiological results have been amply confirmed by pathological investigation. Stengel,[346] Schmoll,[347] Jellick Cooper and Ophüls,[348] Keith,[349] and myself[350] have all recorded instances of disease of the auriculo-ventricular band in cases of heart-block. In some of these the change was a gumma of the inter-ventricular septum; in others it was a simple fibroid change without any very obvious cause. [Lantern slides of my own sections were shown at the end of the address.] The whole subject has been reviewed from a physiological point of view by Langendorff,[351] and from a general point of view by Huchard and Berguignan.[352]

The consideration of this long series of observations inevitably leads us to the conclusion that the far-sighted clinical instinct of Adams and Stokes led them, in comparatively early days, to recognise one of the most interesting of all cardiac disturbances—one which has furnished ample

Digitized by Google

opportunities for the energies of many inquirers, but upon which much work still remains to be done.

My pleasant task has now been performed. The great debt which the medicine of to-day owes to the clinical acumen, scientific insight, and philosophic reasoning of your celebrated countrymen has been, so far as my powers permit, fully acknowledged and gratefully recorded. In the retrospect of the labours of the Irish Schools of Medicine it has not been possible for me, when referring to the observations of those who are happily still our contemporaries, to indulge, as would be agreeable, in the language of panegyric for obvious reasons. But you will perhaps allow me, in conclusion, to express my opinion that the modern spirit of Medicine in Ireland is faithful to the traditions arising with Cheyne, Adams, Graves, Corrigan and Stokes.

REFERENCES.

[1] "The Life and Labours of Graves," in "Studies in Physiology and Medicine." By the late Robert James Graves. Edited by William Stokes. London. 1863. P. ix.

[2] A System of Clinical Medicine. Dublin. 1843.

[3] *Ibid.* New Sydenham Society's Edition. London. 1884. Vol. I., p. vii.

[4] *Op cit.* 1843 Edit. P. 259.

[5] *Op. cit.* P. 4.

[6] *Op. cit.* Pp. 5 and 6.

[7] The Diseases of the Heart and the Aorta. Dublin. 1854.

[8] *Op. cit.* P. 131.

[9] *Op. cit.* Pp. 342 and 343.

[10] *Op. cit.* P. 357.

[11] A Treatise on Diseases of the Heart. Dublin. 1857.

[12] The Diseases of the Heart and of the Aorta. Dublin. 1875

[13] A Practical Treatise on the Diseases of the Lungs and Heart, including the Principles of Physical Diagnosis. London. 1851.

[14] A Practical Treatise on the Diseases of the Heart and Great Vessels, including the Principles of their Physical Diagnosis. Fourth Edition. London. 1873.

[15] A Practical Treatise on the Diseases of the Lungs, including the Principles of Physical Diagnosis and Notes on Climate. Fourth Edition. London. 1871.

Digitized by Google

[16] Principles of Animal Mechanics. London. 1873.
[17] *Ibid.* P. 13
[18] *Ibid,* P. 430
[19] *Ibid.* P. 159.
[20] "Practical Remarks on the Treatment of Aneurism by Compression. Dublin, 1851, and the Successful Treatment of Internal Aneurism by Consolidation of the Contents of the Sac." London. 1864. Second Edition, 1875.
[21] The Successful Treatment of Internal Aneurism. P. 71.
[22] Lectures, chiefly Clinical and Practical, on Diseases of the Lungs and the Heart. London. 1904.
[23] Dublin Journal of Medical Science. 1834. Vol. IV. P. 84.
[24] Report of the Fifth Meeting of the British Association, held at Dublin in 1835. London. 1836. P. 243.
[25] Dublin Journal of Medical Science, 1866, Vol. XLII., p. 35; and 1870, Vol. L., p. 93.
[26] Proceedings, Royal Society, London. 1897. Vol. LXI. P. 331.
[27] Dublin Journal of Medical Science. 1870. Vol. XLIX. P. 74.
[28] The Lancet; 1829; Vol. II.; pp. 1 and 33. Dublin Journal of Medical Science; 1836, Vol. X., p. 173; and 1839, Vol. XIV., p. 305.
[29] Dublin Journal of Medical Science. 1833. Vol. III. P. 22.
[30] *Ibid.* 1837. Vol. XII. P. 1.
[31] Lancet. 1831. Vol. II. P. 261.
[32] Dublin Journal of Medical Science. 1900. Vol. CX. P. 187.
[33] *Ibid.* 1877. Vol. LXIV. P. 187.
[34] *Ibid.* 1881. Vol. LXXII. P. 191.
[35] *Ibid.* 1873. Vol. LV. P. 562.
[36] *Ibid.* 1886. Vol. LXXXI. P. 473.
[37] *Ibid.* 1907. Vol. CXXIII. P. 48.
[38] *Ibid.* 1843. Vol. XXIII. P. 418.
[39] Verbal Communication to Thomson, referred to by Blackley; *vide infra.*
[40] Dublin Hospital Reports. 1830. Vol. V. P. 561.
[41] Dublin Journal of Medical Science. 1834. Vol. V. P. 332.
[42] Dublin Hospital Reports. 1827. Vol. IV. P. 353.
[43] Dublin Journal of Medical Science, 1846, Vol. XI., p. 73; and Diseases of the Heart and of the Aorta, 1854, p. 332.
[44] Dublin Journal of Medical Science. 1865. Vol. XI. P. 456.
[45] Dublin Quarterly Journal of Medical Science. 1852, Vol. XIV., p. 352; 1853, Vol. XVI., p. 76; and 1854, Vol. XVII., p. 90.
[46] *Ibid.* 1862. Vol. XXXII. P. 320.
[47] Dublin Journal of Medical Science. 1873. Vol. LV. P. 305.
[48] Dublin Hospital Reports. 1817. Vol. I. P. 219.
[49] Dublin Journal of Medical Science. 1841. Vol. XIX. P. 1.
[50] Dublin Medical Press. 1857. Vol. XXXVII. P. 145.
[51] Dublin Journal of Medical Science. 1837. Vol. XI. P. 439.
[52] *Ibid.* 1899. Vol. CVIII. P. 1.
[53] Medical Press and Circular. 1902. Vol. II. P. 597.
[54] Dublin Journal of Medical Science. 1906. Vol. CXXI. P. 321.
[55] Dublin Hospital Reports. 1822. Vol. III. P. 319

Digitized by Google

[56] Dublin Journal of Medical Science. 1832. Vol. I. P. 156.
[57] *Ibid.* 1837. Vol. XII. P. 243.
[58] The Cavendish Lecture. London. 1903. P. 17.
[59] Dublin Medical Press. 1853. Vol. XXIX. P. 81.
[60] Dublin Journal of Medical Science. 1893. Vol. LXXXIX. P. 129.
[61] *Ibid.* 1897. Vol. CIII., pp. 368 and 465; and Vol. CIV., pp. 32 and 203.
[62] Dublin Journal of Medical Science. 1840. Vol. XVII. P. 181.
[63] *Ibid.* 1842. Vol. XX. P. 272.
[64] Edinburgh Medical and Surgical Journal. 1831. Vol. XXXVI. P. 45.
[65] Dublin Medical Press. 1840. Vol. IV. P. 21.
[66] Diseases of the Heart and of the Aorta. 1875. P. 102.
[67] Dublin Medical Press. 1857. Vol. XXXVII. P. 144.
[68] Dublin Quarterly Journal of Medical Science. 1848. Vol. V. P. 46.
[69] Dublin Journal of Medical Science. 1836, Vol. X., p. 204; and 1843, Vol. XXIV., p. 337.
[70] Dublin Pathological Society. 1858.
[71] Dublin Journal of Medical Science. 1863. Vol. XXXVI. P. 112.
[72] *Ibid.* 1854. Vol. XVII. P. 226.
[73] *Ibid.* 1870. Vol. XLIX. P. 496.
[74] *Ibid.* 1842. Vol. XXI. P. 385.
[75] *Ibid.* 1888. Vol. LXXXVI. P. 100.
[76] *Ibid.* 1892. Vol. XCIII. P. 417.
[77] Dublin Hospital Reports. 1818. Vol. II. P. 216.
[78] The Diseases of the Heart and of the Aorta. 1854. P. 324.
[79] Dublin Hospital Gazette. 1859. Vol. VI. P. 308
[80] Dublin Quarterly Journal of Medical Science. 1867. Vol. XLIV. P. 405.
[81] *Ibid.* 1868. Vol. XLVI. P. 46.
[82] *Ibid.* 1869. Vol. XLVIII. P. 127.
[83] Cheyne-Stokes Respiration. Edinburgh. 1892. P. 4, *et seq.*
[84] Dublin Journal of Medical Science. 1832. Vol. II. P. 1.
[85] *Ibid.* 1844. Vol. XXV. P. 1.
[86] Diseases of the Heart and of the Aorta. 1854. P. 607.
[87] Dublin Journal of Medical Science. 1835. Vol. VI. P. 51.
[88] De l'auscultation médiate. Paris. 1819. Tome II. P. 368.
[89] Des diverses méthodes d'exploration de la poitrine. Paris. 1824. Pp. 60 and 64.
[90] Dublin Journal of Medical Science. 1833. Vol. II. P. 63.
[91] *Ibid.* 1833. Vol. IV. P. 28.
[92] *Ibid.* 1833. Vol. IV. P. 28.
[93] *Ibid.* 1836. Vol. IX. P. 392.
[94] *Ibid.* 1842. Vol. XX., p. 385; and Vol. XXI., p. 181.
[95] *Ibid.*, 1839, Vol. XIV., p. 349; and a System of Clinical Medicine, Dublin, 1843. p. 821.
[96] Dublin Journal of Medical Science. 1835. Vol. VII. P. 255.
[97] Edinburgh Medical and Chirurgical Transactions. 1824. P. 1.

Digitized by Google

[98] Dublin Journal of Medical Science. 1836. Vol. VIII. P. 411.
[99] *Ibid.* 1876. Vol. LXII. P. 286.
[100] *Ibid.* 1849. Vol. VIII. P. 241.
[101] *Ibid* 1840. First Series. Vol. XVI. P 256.
[102] Rest and Pain. Sixth Edition. London. 1896. P. 262.
[103] Dublin Medical Press. 1853. Vol. XXIX. P. 33.
[104] *Ibid.*, 1853, Vol. XXX., pp. 241, 321, 337 and 353; and 1854, Vol. XXXI., pp. 1, 17 and 65.
[105] Dublin Journal of Medical Science. 1876. Vol. LXI. P 525.
[106] Dublin Hospital Gazette. 1855. Vol. II. P. 179.
[107] Dublin Journal of Medical Science. 1886. Vol. LXXXI. P. 76.
[108] Transactions Royal Academy of Medicine, Ireland. 1888. Vol. VI. P. 360.
[109] Dublin Journal of Medical Science. 1891. Vol. XCII P 198.
[110] Transactions Royal Academy of Medicine, Ireland. 1886. Vol. IV. P. 349.
[111] *Ibid.* 1896. Vol. IV. P. 351.
[112] *Ibid.* 1894. Vol. XCVII. P 308.
[113] Transactions Royal Academy of Medicine, Ireland. 1899. Vol. XVII. P. 503.
[114] Monthly Journal of Medical Science, Lond. and Edin. 1846. Vol. VII., P. 405.
[115] Dublin Medical Press. 1857. Vol. XXXVII. P. 321.
[116] Dublin Quarterly Journal of Medical Science. 1852. Vol. XIII. P. 338.
[117] Dublin Journal of Medical Science. 1868, Vol. XLV., p. 314; and 1869, Vol. XLVIII., p. 590.
[118] *Ibid.* 1873. Vol. LV. P. 562.
[119] The Diseases of the Heart and of the Aorta. 1875. P. 171.
[120] Dublin Journal of Medical Science. 1843. Vol. XXIII. P. 418.
[121] *Ibid.* 1864. Vol. XXXVIII. P. 197.
[122] Edinburgh Medical and Surgical Journal. 1832. Vol. XXXVII. P. 225. Further papers by Corrigan on the same subject are to be found in the London Medical and Surgical Journal, 1836, Vol. I., pp. 103 and 909; the Dublin Hospital Gazette, 1858, Vol. V., p. 1; and the British Medical Journal, 1861, Vol. I., p. 248.
[123] A Treatise on Diseases of the Heart. 1857. P. 152.
[124] Dublin Journal of Medical Science. 1876. Vol. LXII. P. 439.
[125] *Ibid.* 1861. Vol. XXXII. P. 314.
[126] *Ibid.* 1835. Vol. VII. P. 169.
[127] *Ibid.* 1881. Vol. LXXI. P. 101.
[128] *Loc. cit.*
[129] Dublin Quarterly Journal of Medical Science. 1850. Vol. IX. P. 211.
[130] Dublin Hospital Gazette. 1855. Vol. II. P. 245.
[131] Dublin Quarterly Journal of Medical Science. 1852. Vol. XIV. P. 352.
[132] Irish Hospital Gazette. 1873 Vol I. P. 86.
[133] Dublin Quarterly Journal of Medical Science. 1865 Vol. XL. P. 417.

Digitized by Google

Medical Press and Circular. 1866. Vol. I. p. 677; and Vol. II., pp. 5 and 32. Dublin Quarterly Journal of Medical Science. 1870, Vol. XLIX., p. 486; 1872, Vol. LIV., p. 61; 1873, Vol. LV., p. 309; and 1877, Vol. LXIV., p. 560.

[134] Edinburgh Medical Journal, 1861, Vol. VII., p.438; and Clinical Medicine, 1862, p. 560.

[135] Lancet, 1872. Vol. I., p. 704; and Clinical Lectures on Diseases of the Heart and of the Aorta, 1876, p. 101.

[136] Guy's Hospital Report, 1871, Vol. XVI., p. 247; and Reynold's System of Medicine, 1877, Vol. IV., p. 601.

[137] Dublin Hospital Gazette. 1854. New Series. Vol. I. P. 123.

[138] Dublin Medical Press. 1865 Vol. LIII. P. 4.

[139] Dublin Quarterly Journal of Medical Science, 1871, Vol. LII., p. 232; and Dublin Journal of Medical Science, 1883, Vol. LXXV., p. 179.

[140] *Loc. cit.*

[141] Dublin Quarterly Journal of Medical Science. 1848. Vol. V. P. 1.

[142] *Loc. cit.*

[143] Clinical Medicine, 1862, p. 602; and Edinburgh Hospital Reports, 1893, Vol. I., p. 221.

[144] *Vide infrà.*

[145] Dublin Quarterly Journal of Medical Science. *Ibid.* 1867. Vol. XLIV. P. 448.

[146] *Ibid.* 1870. Vol. L. P. 453.

[147] *Ibid.* 1874. Vol. LVII. P. 459.

[148] Transactions of the Royal Academy of Medicine of Ireland. 1901, Vol. XIX. P. 272.

[149] Dublin Quarterly Journal of Medical Science. 1840.

[150] Dublin Journal of Medical Science. 1839. Vol. XV. P. 1.

[151] Lectures on Diseases of the Heart. 1845. Vol. II. P. 135.

[152] Edinburgh Medical and Surgical Journal. 1848. Vol. LXIX. P. 86.

[153] A System of Clinical Medicine. Second Edition. 1864. P. 558.

[154] Dublin Quarterly Journal of Medical Science. 1852. Vol. XIII. P. 460.

[155] *Ibid.* 1871. Vol. LII. P. 42.

[156] A Methodical Introduction to the Theory and Practice of Physic. London. P. 217.

[157] Dublin Hospital Reports. 1818. Vol. II. P. 217.

[158] Dublin Quarterly Journal of Medical Science, 1846, Vol. I., p. 73; and Diseases of the Heart and of the Aorta, 1854, p. 324.

[159] Dublin Quarterly Journal of Medical Science. 1852. Vol. XIV. P. 309.

[160] *Ibid.* 1849, Vol. XXII., p. 370; Edinburgh Medical Journal, 1859, Vol. V., p. 13; and Dublin Medical Press, 1864, Vol. LI., p. 403.

[161] Medical and Chirurgical Transactions. London. 1850. Vol. XXXIII. P. 121.

[162] Dublin Quarterly Journal of Medical Science. 1846. Vol. I. P. 73.

[163] *Loc. cit.*

Digitized by Google

[164] Dublin Journal of Medical Science. 1836. Vol. IX. P. 411.
[165] Dublin Hospital Gazette. 1855. Vol. II. P. 104.
[166] *Ibid.* 1856. Vol. III. P. 27.
[167] Dublin Quarterly Journal of Medical Science. 1868. Vol. XLV. P. 466.
[168] Dublin Journal of Medical Science. 1873. Vol. LVI. P. 338.
[169] *Ibid.* 1875. Vol. LIX. P. 167.
[170] *Ibid.*, 1877, Vol. LXIV., p. 82; and 1880, Vol. LXIX., p. 293.
[171] *Ibid.* 1837. Vol. XI. P. 169.
[172] *Ibid.* 1886. Vol. LXXXI. P. 268.
[173] *Loc. cit.*
[174] *Loc. cit.*
[175] Précis théorique et pratique des Maladies du Cœur. 1851. P. 157.
[176] Edinburgh Medical and Surgical Journal. *Loc. cit.*
[177] Dublin Journal of Medical Science. 1863. Vol. XXXV. P. 168.
[178] *Loc. cit.*
[179] Transactions Pathological Society. London. 1851. Vol. III. P. 80.
[180] Dublin Medical Press. 1850. Vol. XXIII. P. 321.
[181] *Ibid.* 1850. Vol. XXIII. P. 323.
[182] *Loc. cit.*
[183] Dublin Quarterly Journal of Medical Science. 1832. Vol. I. P. 164.
[184] *Ibid.* 1842. Vol. XXI. P. 300.
[185] Dublin Hospital Reports. 1830. Vol. V. P. 6.
[186] *Ibid.*, 1830, Vol. V., p. 6; and Dublin Journal of Medical Science. 1834, Vol. V., p. 400.
[187] Dublin Journal of Medical Science. 1836. Vol. VIII. P. 266.
[188] *Ibid.* 1836. Vol. IX. P. 240.
[189] *Ibid.* 1853. Vol. XV. P. 474.
[190] *Ibid.* 1843. Vol. XXIV. P. 181.
[191] Dublin Medical Press. 1846. Vol. XV. P. 305.
[192] Dublin Journal of Medical Science. 1835, Vol. VII., p. 231; and 1836, Vol. X., p. 341.
[193] *Ibid.* 1842, Vol. XXI., p. 433; and 1843, Vol. XXIV., p. 266.
[194] *Ibid.* 1832, Vol. II., p. 64; 1834, Vol. V., p. 428; and many other papers.
[195] Dublin Medical Press, 1848, Vol. XIX., pp. 260, 340, 355, 371 and 405; also 1849, Vol. XXI., p. 289.
[196] Dublin Quarterly Journal of Medical Science. 1850. Vol. IX. P. 319.
[197] Diseases of the Heart and of the Aorta. 1875. P. 1113.
[198] Dublin Journal of Medical Science. 1842. Vol. XXI. P. 99.
[199] *Ibid.* 1869. Vol. XLVIII. P. 18.
[200] *Ibid.*, 1834, Vol. V., p. 400; and Diseases of the Heart and the Aorta, 1854, p. 569.
[201] Dublin Hospital Gazette. 1855. Vol. II. P. 371.
[202] Monthly Journal of Medical Science, 1855, Vol. XX., p. 71; and Clinical Medicine, 1862, p. 526.
[203] Dublin Hospital Reports. 1830. Vol. V. P. 166.
[204] Dublin Quarterly Journal of Medical Science. 1834. Vol. IV. P. 206.

Digitized by Google

[205] Lancet, 1829, Vol. II., p. 1; and Dublin Journal of Medical Science, 1833, Vol. II., p. 375.
[206] Dublin Hospital Gazette. 1860. Vol. VII. P. 260.
[207] Dublin Journal of Medical Science. 1869. Vol. LXIX. P. 9.
[208] Dublin Hospital Reports. 1822. Vol. III. P. 231.
[209] Dublin Journal of Medical Science. 1845. Vol. XXVI. P. 454.
[210] *Ibid.* 1885. Vol. LXXX. P. 276.
[211] *Ibid.* 1898. Vol. CVI. P. 125.
[212] De Sedibus et Causis Morborum. 1762. Tomus I. P. 168.
[213] Dublin Journal of Medical Science. 1845. Vol. XXVI. P. 243.
[214] Dublin Quarterly Journal of Medical Science. 1846. Vol. II. P. 372.
[215] *Ibid.* 1846. Vol. II. P. 104.
[216] *Ibid.*, 1846, Vol. II., p. 104; and 1859, Vol. XXVII., p. 332.
[217] *Ibid.* 1846. Vol. II. P. 104.
[218] *Ibid.* 1846. Vol. II. P. 104.
[219] *Ibid.* 1846. Vol. I. P. 277.
[220] *Ibid.* 1875. Vol. LX. P. 504.
[221] Dublin Quarterly Journal of Medical Science. 1845. Vol. XXVII. P. 163.
[222] Edinburgh Medical and Surgical Journal. 1851. Vol. XIII. P. 444.
[223] Dublin Medical Press. 1852. Vol. XXVII. P. 81.
[224] *Loc. cit.*, and also Dublin Journal of Medical Science. 1879. Vol. LXVII. P. 5.
[225] Medical Press and Circular. 1873. Vol. XVI. P. 225
[226] Irish Hospital Gazette. 1874. Vol. II. P. 47.
[227] Dublin Journal of Medical Science. 1877. Vol. LXIV. P. 281.
[228] *Ibid.* 1899. Vol. CVII., p. 228; and Vol. CVIII., p. 416.
[229] *Ibid.* 1880. Vol. LXIX. P. 392.
[230] *Ibid.* 1878. Vol. LXVI. P. 202.
[231] *Ibid.* 1834. Vol. V. P. 386.
[232] *Ibid.* 1877. Vol. LXIII. P. 328.
[233] Diseases of the Heart and the Aorta. 1854. P. 615.
[234] Dublin Journal of Medical Science. 1860. Vol. XXIX. P. 474.
[235] *Ibid.* 1882. Vol. LXXIII. P. 154.
[236] *Ibid.* 1871. Vol. LII. P. 36.
[237] *Ibid.* 1872. Vol. LIII. P. 348.
[238] *Ibid.* 1868. Vol. XLV. P. 323.
[239] *Ibid.* 1860. Vol. XXX. P. 33.
[240] Dublin Quarterly Journal of Medical Science. 1834. Vol. V. P. 386.
[241] Dublin Journal of Medical Science. 1873. Vol. LVI. P. 466.
[242] Ueber die Chlorose und die damit zusammenhängenden Anomalien im Gefässapparate. Berlin. 1872.
[243] Dublin Hospital Reports. 1830. Vol. V. P. 1.
[244] Observations on some of the most frequent and important Diseases of the Heart. 1809. P. 138.
[245] Gazette méd. de Paris. 1859. Sér. 3. Tome XIV. P. 282.
[246] Dublin Hospital Reports. 1827. Vol. IV. P. 272.
[247] Dublin Journal of Medical Science. 1835. Vol. VI. P. 54.

Digitized by Google

[248] Dublin Journal of Medical Science, 1836. Vol. IX. P. 324.
[249] *Ibid.* 1881. Vol. LXXI. P. 109.
[250] Dublin Medical Press. 1848. Vol. XIX. P. 113.
[251] Diseases of the Heart and the Aorta. 1854. P. 315.
[252] Collezione d'osservazioni e riflessioni di Chirurgia. 1880. Tomo III. P. 270.
[253] Collections from the unpublished Medical Writings of Caleb Hilliard Parry. 1825. P. 111.
[254] The original description was given in a Clinical Lecture, delivered in 1835, at the Meath Hospital; A System of Clinical Medicine, 1843, p. 674. See also the London Medical and Surgical Journal, 1835. Vol. II. (Vol. VII. of the Series). P. 516.
[255] Dublin Journal of Medical Science. 1842. Vol. XX. P. 471.
[256] *Ibid.* 1845. Vol. XXVII. P. 200.
[257] Diseases of the Heart and the Aorta. 1854. P. 278.
[258] Irish Hospital Gazette. 1873. Vol. I. P. 258.
[259] *Ibid.* 1874. Vol. II., p. 179; and Dublin Journal of Medical Science, 1880; Vol. LXX., p. 452.
[260] Dublin Quarterly Journal of Medical Science. 1865. Vol. XL. P. 344.
[261] *Ibid.* 1853. Vol. XVI. P. 1.
[262] Dublin Journal of Medical Science. 1874. Vol. LVII. P. 108.
[263] *Ibid.* 1874. Vol. LVIII. P. 83.
[264] *Ibid.* 1894. Vol. XCVIII. P. 185.
[265] *Ibid.* 1873. Vol. LV. P. 245.
[266] *Ibid.* 1873. Vol. LV. P. 579.
[267] *Ibid.* 1900. Vol. CIX. P. 256.
[268] *Ibid.* 1899. Vol. CVIII. P. 257.
[269] Lecture on the Resources of the Physician in the management of Chronic Disease of the Heart. Dublin. 1894.
[270] The Practitioner. 1869. Vol. III. P. 342.
[271] De usu partium, Lib. VI., Cap. 14, et 14. Edit. Kühn. Lipsiae. 1822. Vol. III. P. 476.
[272] Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus. Frankfort. 1628. P. 67.
[273] A Treatise on the Blood, Inflammation and Gunshot Wounds. 1794. P. 162.
[274] *Loc. cit.*
[275] Guy's Hospital Reports. 1837. Vol. II. P. 104.
[276] The Diseases of the Heart and the Aorta. 1854. P. 167.
[277] *Op. cit.* P. 234.
[278] De l'influence pathogénique des Maladies Pulmonaires sur le Cœur droit. 1865. P. 25.
[279] Edinburgh Medical Journal. 1880. Vol. XXV. P. 982.
[280] Physical Signs of Cardiac Disease, 1881, p. 43; and Medical Chronicle, 1889, Vol. IX., p. 182.
[281] British Medical Journal. 1888. Vol. I. P. 246.
[282] Liverpool Medical and Chirurgical Journal. 1894. P. 64.

Digitized by Google

[283] Edinburgh Hospital Reports, 1894, Vol. II., p. 332; and Diseases of the Heart and Aorta, 1898, pp. 571 and 580.

[284] Diseases of the Heart and Aorta. 1898. P. 610.

[285] Diseases of the Heart and Arterial System. 1903. P. 343.

[286] The Study of the Pulse. 1902. P. 188.

[287] Grundriss der Pathologie und Therapie der Herzkrankheiten. 1899. S. 135 and 218.

[288] Nothnagel's Specielle Pathologie und Therapie. 1903. Band XV. I. Theil. S. 20 and 143.

[289] Pathologische Physiologie. 1904. Dritte Auflage. S. 15 and 24.

[290] Lehrbuch der Krankheiten des Herzens und der Blutgefässe. 1906. S. 191.

[291] American Journal of Medical Science. 1906. Vol. CXXXII. P. 378.

[292] *Ibid.* 1906. Vol. CXXXII. P. 393.

[293] Der Herzmuskel. 1903. S. 523.

[294] Journal of Physiology. 1883. Vol. IV. P. 43.

[295] Lancet. 1904. Vol. I. P. 703.

[296] British Medical Journal. 1905. Vol. II. P. 1689.

[297] *Loc. cit.*

[298] *Loc. cit.*

[299] *Loc. cit.*

[300] Treatise on Auscultation and Percussion. Translated by W. O. Markham. 1853. P. 158.

[301] Virch. Arch., 1868, Band XLIV., s. 365; and 1875, Band LXV., s. 153.

[302] Edinburgh Medical Journal. 1878. Vol. XXIII. P 594.

[303] Journal of Physiology. 1883. Vol. IV. P. 43.

[304] *Op. cit.* P. 121.

[305] Rev. de Méd. Paris. 1885. Tome V. P. 161.

[306] Comptes rend. Soc. de Biol. Paris. 1893. P. 170.

[307] St. Petersb. med. Wchnschr. 1897. P. 301.

[308] Deut. Arch. klin. Med. 1899. Bd. LXIV. S. 316.

[309] Deut. med. Wchnschr. 1902. Bd. XXVIII. Ver. Beitr. S. 69.

[310] British Medical Journal. 1902. Vol. II. P. 1411.

[311] Die Arythmie, 1903, S. 148; and Arch. Anat. u. Phys., Phys. Abt., 1906, S. 297.

[312] Lancet. 1903. Vol. II. P. 516.

[313] The Nervous Affections of the Heart, Edinburgh, 1904, p. 61; and Edinburgh Medical Journal, 1905, New Series, Vol. XVIII., p. 9.

[314] Journal of Experimental Medicine. 1905. Vol. VII. P. 676.

[315] Transactions Clinical Society London. 1905 Vol. XXXVIII. P. 187.

[316] Proceedings of Royal Society Edinburgh. 1905. Vol. XXV. P. 1085.

[317] Zeitschft. für exper. Path. und Ther., 1905, Band II., s. 75; and 1906, Bd. III., s. 511.

[318] Deut. Arch. klin. Med. 1906. Bd. LXXXVII. S. 554.

[319] British Medical Journal, 1905, Vol. II., p. 988; Lancet, 1906, Vol. I., pp. 139 and 239; and Liverpool Medico-Chirurgical Journal, 1906, p. 66.

Digitized by Google

[320] Zeitschft. für exp. Path. und Ther. 1905. Band II. S. 83.
[321] Zeitschft. klin. Med. 1905. Bd. LVII. S. 529.
[322] Deut. Arch. klin. Med. 1906. Bd. LXXXVI. S. 456.
[323] *Ibid.* 1906. Bd. LXXXVI. S. 462.
[324] Dublin Journal of Medical Science. 1906. Vol. CXXI. P. 321.
[325] Zeitschft. klin. Med. 1900. Bd. XLI. S. 357.
[326] Glasgow Hospital Reports. 1901. Pp. 420 and 454.
[327] Deutsches Arch. klin. Med. 1902. Bd. LXII. P. 77.
[328] Journal of Anatomy and Physiology. 1880. Vol. XIV. P. 1.
[329] *Loc. cit.*
[330] Arch. de Méd. Expér. 1906. Tome XVIII. P. 230.
[331] *Loc. cit.*
[332] British Medical Journal. 1906. Vol. II. P. 1113.
[333] Arch. Néerland. des Sc. Exactes et Naturelles. Sér. II. Tome XI. P. 239.
[334] British Medical Journal. 1906. Vol. II. P. 22.
[335] *Ibid.* 1906. Vol. II. P. 1113.
[336] *Loc. cit.*, and Arch. de Physiol. Norm. et Path., 1888, IV. Sér., Tome I, p. 56.
[337] Journal of Physiology. 1893. Vol. XIV. P. 233.
[338] Arbeiten aus der med. Klinik zu Leipzig. 1893. S. 14.
[339] Ein Beitrag zur Lehre von der Erregungsleitung zwischen Vorhof und Ventrikel des Froschherzens. 1901. S. 12.
[340] Arch. f. Anat. und Physiol., Anat. Abt. 1904. S. 1.
[341] Ueber muskelöse Verbindung zwischen Vorkammer und Kammer bei verschiedenen Wirbeltierherzen. 1904. S. 1.
[342] Arch-internat. Physiol. 1906. Tome III. P. 330.
[343] Das Reizleitungssystem des Säugetierherzens. 1906. S. 1.
[344] Lancet, 1906, Vol. I., p. 623; and Vol. II., p. 359.
[345] Bull. Johns Hopkins Hospital, 1905, Vol. XVI., p. 202; American Journal of Physiology, 1906, Vol. XVI., p. 160; and British Medical Journal, 1906, Vol. II., p. 1111.
[346] American Journal of Medical Science. 1905. Vol. CXXX. P. 1083.
[347] Deut. Arch. klin. Med. 1906. Bd. LXXXVII. S. 554.
[348] Journal American Medical Association. 1906. Vol. XLVI. P. 955.
[349] Lancet. 1906. Vol. II. P. 1429.
[350] British Medical Journal. 1906. Vol. II. P. 1113.
[351] Ergebnisse der Physiologie. 1905. S. 263.
[352] Journal des Practiciens. 1906. Pp. 821 and 837.

Digitized by Google

THE TREATMENT OF GASTRIC ULCER.

By JAMES LITTLE, M.D. Edin. and Dubl.;
Physician to the Adelaide Hospital;
Regius Professor of Physic, University of Dublin.

[Read in the Section of Medicine, January 18, 1907.]

The Council of the Medical Section of the Academy have done me the honour of asking me to open this discussion on the treatment of ulcer of the stomach by describing what, according to my experience, can be done for patients suffering from gastric ulcer by the therapeutic measures which are at the disposal of the physician. I will not occupy longer than the prescribed time, but would like briefly to allude to a few preliminary considerations.

During my practice before gastric ulcer was made a disease for surgical interference all my knowledge of the appearance of gastric ulcers was gained by seeing them in cases which had become fatal from perforation. In other words, I cannot recollect a case in which gastric ulcer ended fatally either by gradual exhaustion or by hæmorrhage. I have several times seen a young woman who seemed just about to die from bleeding, but I cannot recollect one who did die. Since the treatment of gastric ulcers by surgical methods has been introduced all my opportunities of seeing them have been in the theatre.

Two kinds of gastric ulcer are described in books. The ulcer with thickened edges and general induration of the stomach wall surrounding it. I can only recollect seeing three such ulcers. They all occurred in men, and in men past middle life. In all three there was a history of gastric symptoms extending over many years, and they were all

Digitized by Google

fatal by perforation. In two of the cases there had occurred, immediately before death, rupture of a sac formed long previously, in consequence of perforation and the limitation of extravasation of the contents of the stomach by adhesions. These ulcers appear to me due to long-continued gastritis, the result of an unsuitable dietary, and the want of any treatment at a time when treatment might be effective.

The ulcer more commonly seen is entirely different; it is usually about the size of a shilling; it is not surrounded by thickening; its edges are sharply cut, and, as it deepens, it gradually narrows until it perforates the peritoneum by a small rent. There is no more certain fact in clinical medicine than that these ulcers, in the vast majority of instances, occur in chlorotic young women. How the original lesion of the mucous membrane is brought about we really do not know, in spite of the various ingenious explanations which have been suggested; but there cannot, I think, be any doubt that the obstacles to the healing of such ulcers are the movements of the stomach and the hyperacidity of its secretions. Inasmuch as we know that both the movements of the stomach and the secretion of hydrochloric acid are greatly increased by the presence of food, we can easily understand the importance of putting little food into a stomach which is the seat of an ulcer.

It is sometimes easy enough to know that a young woman has ulcer of the stomach, but occasionally the diagnosis is uncertain. I cannot recollect to whom we owe the aphorism that we should never make the diagnosis of ulcer of the stomach unless the patient has vomited blood, nor of cancer of the stomach unless we can feel the tumour, but I think it puts the case very fairly. If a young girl, chlorotic, or, though not chlorotic, thin and delicate, has pain after food, a pain which is severe in proportion to the solidity of the food, and which comes on almost immediately after the food has been

Digitized by Google

swallowed, and which is referred to the epigastrium and to the space between the left scapula and the spine, about the level of the tenth dorsal vertebra; if the pain is usually terminated by the vomiting of very acid gastric contents, and if on one or more occasions she has vomited blood, the diagnosis of gastric ulcer is almost certain. There is usually tenderness as well as pain, and there is one kind of tenderness which, for the purpose of suggesting treatment, is important; I allude to exquisite tenderness, so that even the lightest touch or the pressure of the night-dress causes pain. When this is due to gastric ulcer I fancy it indicates the existence of an ulcer on the anterior wall which has set up localised peritonitis, and probably has almost perforated the peritoneal coat of the stomach. But I think such exquisite tenderness is occasionally due not to ulcer, but to an hysterical condition, at least I have seen two cases in which the phenomenon was present, with persistent vomiting, in both of which all the surrounding circumstances seemed to point distinctly, not to ulcer, but to hysteria. We must not too readily accept the statement that the patient has vomited blood; persistent vomiting nearly always produces a streak of bloody mucus, and I have sometimes heard this described as bloody vomit; the vomit which is characteristic of ulcer is pure blood, and in considerable quantity, from a wineglassful to one or two pints.

I do not know whether it was the intention of the Medical Section to include ulcer of the duodenum with ulcer of the stomach. Although it is generally considered as due to the same conditions, since it almost invariably occurs in the first portion of the duodenum, which is functionally a portion of the stomach, there are several circumstances which appear to me to show it is of an essentially different nature. Gastric ulcer is seldom seen except in hospital patients—namely, in young women between twenty and thirty; duodenal ulcer,

Digitized by Google

according to my experience, is very rarely seen in hospital, but in private in men over forty; the pain does not come on for two or three hours after the meal, and seldom goes out behind. * Duodenal ulcer is a far less manageable disease than gastric ulcer. Within the past five years I have lost three patients by perforation, who had all been confined to bed for weeks and most carefully fed, a calamity which I have never known occur in a patient with gastric ulcer who was similarly cared.

Some fifteen years ago a woman was admitted to hospital, under my care, with very characteristic symptoms of gastric ulcer. She was put to bed; she was fed on milk; her bowels were kept open by enemata; small blisters were applied over the epigastrium, and she was put on Dr. Hudson's white mixture. In about five weeks she was able to return to the country, and I felt that Dr. Hudson's mixture had once more justified my admiration of it. In two years the patient returned with the former symptoms; she was put to bed on the same diet, and I gave her the "three soda mixture," which about that time I had begun to employ. She was again able to return to the County Down in about five weeks, and I felt that my "three soda mixture" was as good as Dr. Hudson's mistura alba. In a year she returned again. This time, instead of the "three soda mixture," she got camphor water, and she was cured just as soon.

With some exceptions, to which I will allude, the remedy for gastric ulcer is confinement to bed. If the patient is confined to bed there is little danger of perforation or of hæmorrhage, and if she is properly fed it seldom matters whether she gets any drug.

I have read the elaborate directions as to diet in some works, and particularly in some of the German special treatises which have been translated into English. I do not think they give us any useful information. The vast majority of sufferers

Digitized by Google

from gastric ulcer belong to a humble walk in life, and have been accustomed to simple fare. Milk suits the majority of sufferers from gastric ulcer; often raw milk disagrees, but boiled milk, milk mixed with a very small quantity of arrow-root—which prevents the formation of masses of caseïn—peptonised milk, or the old-fashioned milk and lime-water, will agree. But some patients abhor milk, and then beef tea, mutton tea, triple broth,[a] or in bad cases essence of chicken[b] and beef tea rapidly cooled on ice[c] will agree. According to my experience the addition of a small quantity of Groult's tapioca is soon tolerated; Horlick's malted milk, and Benger's food, and Plasmon biscuits are also serviceable; then whiting or plaice, and very soon chicken or mutton. Freshly made weak tea with cream may be given. Cream, indeed, generally agrees admirably. To the very few private patients I have treated for gastric ulcer I gave appropriate delicacies—sweet-bread, lamb's brain and caramel pudding. In every case,

[a] Take half a pound of beef; half a pound of veal; flesh of half a chicken; cut these fine and pour on them one pint and a half of cold water, allow the whole to stand for three hours, and then simmer for half an hour.

[b] Get a freshly-killed chicken, skin it and cut off the flesh, rejecting the bones, sinews, and fat; throw the pieces of flesh into a bowl of cold water. After a few minutes pick them out with merely as much water as adherent to them, and put them in a jam-pot, which should be covered with a sheet of paper in which a few holes should be pricked. Place the jam-pot in a saucepan of hot water; allow it to simmer for half an hour, and then pour off the juice, which will about fill a wineglass. Of this, two or three teaspoonfuls can be given as required.

[c] Take two pounds of beef off the round, free it from all fat and skin, and mince it finely. Put it into a covered jar; pour over it half a pint of *cold water*. Put the cover on the jar and place it in a saucepan of hot water. Place the saucepan by the fire or on the hob until the contents of the jar have SIMMERED (not boiled) for half an hour. Have a tumbler or large cup surrounded by ice, and into this tumbler pour the extract from the jar, straining it through muslin as it passes. In a short time there will be a considerable deposit in the tumbler, which must not be disturbed. If the process has been properly conducted the supernatant fluid will be free from turbidity, and of a Madeira colour; and of this a wineglass may be taken at a time.

Digitized by Google

when butcher's meat is begun, care should be taken that it has been long enough kept to be tender.

I have alluded to the keeping of the bowels open by enemata. Early, very early, in my professional life I had a patient with gastric ulcer, who suffered intense pain when she took purgative medicine. I thought there was an adhesion between the stomach and the transverse colon, and that it was the dragging of the adhesion during the peristalsis of the large bowel which caused such suffering. Patients often come into hospital with their colons loaded with hard lumps, and I am in the habit of refraining from purgatives by the mouth until these hardened scybala have been removed. After this has been done Carlsbad salt, or the imitation of Carlsbad salt made of chloride of sodium, carbonate of sodium and sulphate of sodium, is probably the safest aperient; but at this stage the patient usually needs iron, and I find the well-known mixture of sulphate of iron and sulphate of magnesium answers well.

There are cases, however, in which, in spite of confinement to bed and the clearing out of the bowels, pain continues on the introduction of food. These cases are few if the fluid be given in very small quantities and warm; hardly ever, in my experience, if the food be hot-boiled milk and lime-water. If, however, it does, we should keep the patient on nutritive injections for a few days. If pain continues I then apply small blisters—blisters the size of a florin—over the painful region. I think the use of blisters must be generally given up, for I do not see them recommended in the text-books, and this leads me again to allude to the cases in which there is exquisite tenderness, so that the least touch gives pain. A blister always does harm in such a case, but the application of four leeches gives immediate relief. Internal remedies also relieve the pain; one of the best is Dr. Hudson's white mixture, or, as he himself always maintained, Wilson Philip's white

Digitized by Google

mixture, for he said he learned it from the celebrated Wilson Philip.[a] Sometimes I have added to each dose ten minims of liquor morphinæ hydrochloridi, and sometimes one-sixth of a grain of hydrochloride of cocaïn. A very convenient combination is one of prussic acid, liquor calcis saccharatus and liquor bismuthi. This was what the late Sir Dominic Corrigan usually gave. I have found milk of magnesia very useful, and an admirable powder is one which I learned from Sir William Whitla—it consists of hydrochloride of morphin, gr. $\frac{1}{18}$; Finkler's papaïn, 3 grains; carbonate of bismuth, 5 grains; bicarbonate of sodium, 15 grains; and heavy carbonate of magnesium, 20 grains.

We must remember that the richer the patient's blood is the sooner will the ulcer heal, and that therefore, although we must do nothing and give nothing which might cause a risk of perforation or hæmorrhage, the sooner we can give food which will make blood the better, and so long as the patient is in bed, and that we try at first very small quantities, we may reach solid food sooner than is generally supposed; and one of the first articles to agree, in my experience, is finely scraped and pounded raw beef which has been some days killed.

The three events which gravely compromise the safety of the patient who suffers from gastric ulcer are: persistent vomiting, hæmorrhage, and perforation. The terms of our discussion forbid the consideration of the last, and therefore I shall devote what remains of my time to the other two.

Persistent sickness and vomiting are occasionally difficult to control. Looking back on the cases I have seen, I would say the first thing is generally to try for twenty-four hours to

[a] Dr. Hudson's Mistura Alba (*slightly modified*):—Potassii nitratis, gr. xii; Bismuthi subnitratis, ʒiss; Acidi hydrocyanici diluti, min. xxxvi; Acidi nitrici diluti, ʒi; Mucilaginis acaciæ recentis, ʒi; Aquæ chloroformi, ad ʒvi. Shake the bottle, and give half an ounce thrice daily half an hour before food.

Digitized by Google

nourish the patient entirely by rectal feeding; but this does not always succeed, and, indeed, I have not the faith in rectal feeding which is entertained by some. Absolute abstinence from milk is, I think, the most important advice. I have seen intractable vomiting cease when milk was given up.

The next thing which all the nurses who have worked with me have been taught to do, not only in the vomiting of gastric ulcer, but in urgent sickness arising under other conditions, is to give half a teaspoonful of bicarbonate of sodium in half a tumbler of water, as hot as is comfortable, to the patient; if the first draught of this kind is thrown up I give it again, but if this fails I try another remedy.

Essence of chicken in teaspoonful doses often stops vomiting; a pill containing one-sixth of a grain of cocaïn is sometimes successful; my "three soda mixture" I have known succeed when other things failed; five minims of tincture of nux vomica, or a teaspoonful of granular citrate of caffein in a claretglassful of water, or a morsel of stale bread washed down by a wineglassful of champagne are all remedies of which I have had actual and favourable experience. If the patient is not only sick, but restless and sleepless, I have given one-sixth of a grain of sulphate of morphin with one two-hundredth of a grain of sulphate of atropin hypodermically, and I do not remember any case in which the morphin subsequently caused its own peculiar nausea.

Of some remedies frequently used, such as ice, creosote, and prussic acid, I have no favourable experience.

In the beginning of this communication I stated that I had never seen a death in gastric ulcer due to hæmorrhage, and I therefore think that such remedies as surgical interference for hæmatemesis can seldom be required. What I have seen most useful was either a hypodermic of morphin and atropin or the introduction of a quarter of a grain of morphin into the rectum. The use of morphin after a severe

Digitized by Google

hæmorrhage, however, I think, requires caution (many years ago I saw a case in which death seemed immediately due to a not very large injection of morphin in a patient who had vomited a great quantity of blood, owing to cirrhosis of the liver), just as the use of morphin and of hyoscine requires more than usual caution when a patient, from any cause, has had very little food. The morphin, rigid quiet, and rectal feeding have been the means I have for many years employed, and since I saw the value of adrenalin in the hands of my surgical colleagues I have always given twenty minims of Parke Davis's chloride of adrenalin in a teaspoonful of cold water. It seemed to me useful. Another remedy in which I still retain some faith is turpentine, ten or twenty minims may be given in capsule.

With regard to the administration of ice and the injection of ergotin I cannot conceive their doing anything but harm.

I look forward with great pleasure, as I am sure everyone in this hall does, to hearing from Sir Charles Ball an account of the methods he has been led to employ in the treatment of ulcer of the stomach, but I may take the liberty of saying that I think we physicians should make a great effort to cure cases of gastric ulcer without seeking surgical aid. In saying this I desire, of course, to exempt cases where perforation has occurred, and probably I should also exempt cases where we have to deal with a greatly dilated stomach, and where we are able with comparative certainty to say that the dilatation of the stomach is due to the cicatrisation of an ulcer at the pylorus; but I venture to think such cases are not common. The causation of dilatation of the stomach is obscure, and in cases which we might reasonably attribute to pyloric narrowing we are sometimes mistaken. Some four years ago a young man, with very dilated stomach, was admitted to the Adelaide Hospital; there was a long history of gastric pain and vomiting, and it might possibly have been thought that the dilatation

Digitized by Google

was sequential to the cicatrisation of an ulcer. It so happened that the day after admission the patient developed pneumonia, of which he died rapidly, and, although we found one of the largest stomachs I ever saw, there was no trace of ulcer or of cicatrix. So, even in such cases, I feel we should try by lavage, by careful dieting (such as is suitable for dilatation of the stomach), and by the antiseptic drugs which find their application in such cases, to avert the necessity of laparotomy. I somehow cannot regard the operation which establishes a communication between the stomach and the jejunum as likely in the long run to prove satisfactory. It permits the food to leave the stomach before the mechanical and chemical parts of gastric digestion have been completed; it deprives the duodenum of the physiological stimulus which the hydrochloric acid coming from the stomach affords in bringing on the emission of bile and pancreatic juice; and it abruptly introduces into the jejunum highly acid and imperfectly prepared food instead of the alkaline material for which it is fitted.

I may add that doubt as to the value of surgery in the treatment of bad stomachs has been somewhat suggested by the fact that of late years a few people have consulted me for stomachs which still gave them great trouble, and when noting the principal signs I found myself obliged to mention that "there is a scar five inches long" in the linea alba.

Digitized by Google

THE TREATMENT OF NON-MALIGNANT GASTRIC ULCER.

By SIR CHARLES BALL, M.Ch. Univ. Dub., F.R.C.S.;
Hon. Surgeon to His Majesty the King;
Regius Professor of Surgery, University of Dublin.

[Read in the Section of Medicine, January 18, 1907.]

A CONSIDERATION of the causes which produce gastric ulcer and the conditions which tend to interfere with its healing when once established is obviously of first importance in deciding upon the best form of treatment to effect its cure.

The more or less circular outline, flat base, and sharp-walled edges of ulcer of the stomach are very special characters which at once suggest the operation of some special cause, and the exposure of the stomach surface to a highly acid digestive fluid has been assumed to be the explanation. That the normal stomach is immune to autodigestion is, of course, obvious. Weinland (Halliburton's "Handbook of Physiology," 6th edition, page 489) considers that this immunity is due to the formation by the stomach epithelium of an antipepsin, and that in the same way the intestinal epithelium forms an antitrypsin. If, then, the mucous membrane is injured by direct traumatism from hard substances swallowed, by septic infection from the ingesta, or by necrosis following embolic infarction, this theory supposes that autodigestion occurs in the damaged area, and thus the ulcer is extended in dimensions, and its healing is interfered with. This theory has received very general acceptation; so we see, even in the most modern text-books, the disease spoken of as "peptic ulcer of the stomach." I am confident that this is one of the somewhat numerous fallacies which

Digitized by Google

have been adopted from time to time in medicine without question, although opposed to directly ascertainable facts. The evidence obtainable by *post-mortem* examination, by clinical observation, and by surgical experience clearly demonstrates that peptic action has nothing whatever to say to the origin or maintenance of gastric ulcer.

It is common to find at *post-mortem* examinations cicatrices in the stomach showing that gastric ulcers have undergone spontaneous cure. If autodigestion had been the cause of these ulcers how is it possible that the delicate process of healing by granulation and epitheliasation could go on while exposed to the same influence? It is notorious that a large proportion of cases of gastric ulcer get well under treatment by rest in bed, rectal feeding, and little or no fluid nourishment by the mouth. Physiologists tell us that gastric juice is secreted independently of the ingestion of solid food, that the sight of meat to a hungry dog causes a free flow, and that fluid meat extracts stimulate secretion. It is a popular expression that at the sight of dainty food the "mouth waters"; it would alike be true to say that under similar circumstances the "stomach juices."

Let us take now the case of a chlorotic girl lying in bed in hospital undergoing the routine treatment for gastric ulcer; possibly in the next bed may be a case convalescent from some acute disease. When dinner hour arrives the convalescent is provided with a succulent mutton chop, the stomach case with a rectal injection and possibly a tablespoonful of chicken broth. Our knowledge of physiology tells us that the latter must have a free secretion of gastric juice, which, not getting the coveted mutton chop on which to expend its energies, might reasonably be expected to act more vigorously on the ulcer than if she had received a solid meal.

Surgical experience tells us that stomach wounds when closely sutured up heal with the utmost facility; it is usual

Digitized by Google

in such wounds to bring the divided edges of mucous membrane together by a continuous silk suture, which must produce a certain amount of necrosis, and which eventually cuts its way out into the lumen of the stomach. Surely under these circumstances if gastric digestion of living stomach tissue ever occurred these wounds would not heal, or at any rate leakage would be of frequent occurrence, but we know that with proper modern technique leakage seldom or never occurs. This satisfactory healing of stomach wounds appears to indicate that the immunity against autodigestion is not confined to the mucous membrane, but is present also in the deeper coats. The theory, therefore, of Weinland that the gastric epithelium forms an antipepsin appears to be scarcely a sufficient explanation.

A consideration of these facts renders the theory of peptic action as a cause of gastric ulcer quite untenable.

Septic infection, especially coming from suppuration in connection with bad teeth, has been suggested as a cause of gastric ulcer, and in all probability this may be frequently an initial element of the disease ; but it is hard to imagine that it can be the cause of a chronic ulcer remaining open for months or years, especially when we see that gastro-enterostomy performed when there is an open ulcer in the stomach so rarely becomes infected.

The mechanical effect of solid food being churned about in the stomach is sometimes mentioned as the reason why gastric ulcers, which may have had their origin in traumatism, sepsis, or infarction necrosis, do not readily heal, and although hitherto it has usually been considered as of secondary importance to the peptic theory, I am convinced that it is the true explanation not only of the characteristic appearance of gastric ulcer, but also of the known facts relating to spontaneous cure and the results of medical and surgical treatment.

Many years ago, as a medical student, I saw an old surgeon

Digitized by Google

make an issue in the back of a patient's neck for the treatment of severe facial neuralgia. A piece of adhesive plaster with a small circular hole in it was first applied, and caustic potash was rubbed in so as to produce a circular slough of skin where it was exposed in the hole in the plaster; when the slough separated an ulcer was left, and as the neuralgia had not been cured, the surgeon decided to "keep the issue open"; this was done by the simple process of keeping a pea in the ulcer by means of a piece of adhesive plaster. By this method the issue could be kept from healing as long as was considered necessary, and the characters of the ulcer thus produced, with flat base and sharp cut edges, closely resembled the appearances we are familiar with in chronic gastric ulcer. As the pea kept the issue from healing, so the frequent passage of solid food over the surface of a gastric ulcer retards its cicatrisation.

We know that pain—sometimes very severe pain—follows the introduction of solid food into a stomach which is the site of ulcer. This may be so great that the patient instinctively avoids solids, and thus affords the stomach that rest which is necessary to permit of spontaneous cure.

Our modern treatment of gastric ulcer, which is quite unintelligible on the peptic theory, is readily explained if we believe that the continuance of ulcer is caused by the mechanical effect of solid food.

It is certain that a large proportion of cases of gastric ulcer will get quite well by rest in bed, rectal feeding, withholding solid food, and strict limitation of the amount of fluids taken by the mouth; but it is well to remember that there are limits to this plan of treatment, and that if carried too far it will defeat its object, as there can be no doubt that a condition of semi-starvation seriously interferes with the healing process, and that surgical operations undertaken under these conditions are not satisfactory. I would strongly urge that all cases of uncomplicated ulcer of the stomach

Digitized by Google

should, in the first instance, be treated by a short but efficient course of rest and limited diet, and that those cases which do not show rapid and marked improvement should be dealt with by surgical operation, and that cases of recurrence of symptoms after apparent cure by rest and limited diet should at once be operated on.

The operation now recognised as best in these cases is posterior gastro-enterostomy. Excision of the ulcer can be practicable in only a small minority of cases, and although it may occasionally, in suitable cases, be considered as an addition to gastro-enterostomy, it should not be undertaken as a substitute, as the essential object of surgical operation should be the provision of a free outlet from the lower portion of the stomach into the jejunum, the free exit thus provided for the contents of the stomach affording the ulcer the rest essential for its healing, and tending to prevent recurrence in the future.

My personal experience of gastro-enterostomy and pyloroplasty extends to forty cases, but in only four of these was uncomplicated gastric ulcer found present; all the four recovered well, and—so far as I know—remain quite free from recurrence. The results obtained by others who have had larger experience show that the dangers of the operation are comparatively trivial, and the proportion of cases in which complete cure follows is large—in many instances patients who for months or years have been in misery being made perfectly well.

The brilliant results of modern gastric surgery have tended sometimes to engender surgical recklessness. We occasionally hear of gastro-enterostomy being performed in purely neurotic cases, in the gastric crises of tabes, and even in dyspepsia due to chronic renal disease. Such proceedings do much to bring discredit upon this operation, which, in properly selected cases, is often such a conspicuous success.

Digitized by Google

The immediate risk of posterior gastro-enterostomy in ordinary cases is probably not more than two or three per cent. It is, however, necessary to consider certain results of the operation which occasionally give trouble, and which are directly consequent on making a free communication between the stomach and jejunum, and of these the most frequent is the regurgitation of duodenal contents into the stomach, producing vomiting. The occurrence of vomiting after gastro-enterostomy is an interesting physiological problem. We are accustomed to believe that the act of vomiting is caused by, first of all, a closure of the pylorus, followed by a reflex peristalsis forcing the stomach contents up the œsophagus. If now a gastro-enterostomy is present, and as it is unprovided with any sphincteric apparatus, it is reasonable to expect that an attempt to vomit would empty the stomach into the jejunum rather than up the œsophagus. It is obvious that for vomiting to take place under these circumstances there must be an associated spasm in the intestine, and also, probably, in the voluntary muscles of the abdominal wall.

Regurgitation of duodenal contents into the stomach, followed by persistent vomiting, is, however, not so troublesome with modern surgical technique as it was formerly. Katzenstein (*Medical Press*, Dec. 6th, 1906) states as a result of his investigations, principally on experimental gastro-enterostomy in animals, that a flow of duodenal contents containing bile and pancreatic juice into the stomach is constant for a considerable period after gastro-enterostomy, and, adopting the peptic theory of gastric ulcer, he suggests that the neutralisation of the gastric juice by the alkaline duodenal contents is the explanation of the good results obtained by gastro-enterostomy. It must, however, be remembered, as pointed out by Ewald, that it is unsafe to draw conclusions from the results of gastro-enterostomy in animals, as the horizontal posture in them favours the flow

Digitized by Google

of intestinal contents into the stomach more than in the case of man; moreover, it is common surgical experience that bilious vomiting following gastro-enterostomy can generally be stopped by putting the patient in the sitting posture, and so facilitating drainage. Should, however, regurgitant vomiting prove serious, lateral anastomosis between the two limbs of the loop of jejunum involved in the gastro-enterostomy will usually prove effectual. In two of my forty cases of gastro-enterostomy this was necessary.

Another after-complication of the operation is the occurrence of so-called peptic ulcer, sometimes leading to perforation, in the jejunum. An interesting paper by Dr. Watts in the *Johns Hopkins Hospital Bulletin* for July, 1903, deals with this subject. The author performed gastro-enterostomy on a dog, and three months after it died of perforating jejunal ulcer. A review of the literature of the subject shows that up to date on fourteen occasions similar ulcerations have been recorded in the human subject; it is remarkable that they all have been recorded in Germany. The question whether such ulcers are really peptic is an interesting one. Although the jejunum is normally immune to alkaline trypsin digestion, it is quite possible that it may not be, like the stomach, immune to acid pepsin digestion; it is also unaccustomed to the presence of large quantities of undissolved food, such as it must receive after gastro-enterostomy. It appears at present impossible to say which of these factors is the most operative; at any rate its occurrence is so rare that it cannot be held to be a contraindication to operation in suitable cases.

A curious sequence to gastro-enterostomy, which I have not seen described elsewhere, occurred in one of my cases. The portion of jejunum corresponding to the stomach anastomosis became dilated to quite four times its normal size, forming a sort of secondary stomach, and produced

Digitized by Google

obstruction by kinking of the distal portion of intestine, with continuous vomiting; a lateral anastomosis below the dilatation quite relieved the symptoms. This was done a year ago, and the patient at present remains in good health. I am quite at a loss to account for this condition.

In conclusion, I would urge, after the fullest consideration of the risks of operation, both immediate and remote, that all cases of uncomplicated gastric ulcer which have had a reasonable trial of treatment by rest and limited diet without very marked improvement, should be subjected to gastro-enterostomy. There are, however, many points, both pathological and physiological, in connection with this most interesting subject which still require further elucidation.

Digitized by Google

GASTRIC ULCER: ITS DIAGNOSIS AND TREATMENT.

By JAMES ALEX. LINDSAY, M.D., F.R.C.P. (Lond.), M.A.;
Professor of Medicine in Queen's College, Belfast.

[Read in the Section of Medicine, January 18, 1907.]

Gastric ulcer must be decidedly common in the North of Ireland, as I find from the reports of the Royal Victoria Hospital that we had 110 cases in 1905, 70 in the previous year, and 69 in the year before that.

As regards the conditions that would warrant the diagnosis of ulcer, I am hardly prepared to admit that we must wait for hæmorrhage. I am inclined rather to say that in the case of any young woman, especially one who was debilitated or anæmic, if she had much pain after food, occasional vomiting, and a small area of tenderness in the epigastrium, the evidence for ulcer was fairly satisfactory. Most cases of this kind have ulcer as their basis; there are, of course, differences of degree. Gastralgia should be diagnosticated with caution, and only when ulcer can fairly be excluded.

A period of complete rest is very important, with a restricted diet. We should also employ alkalis, and probably bismuth, as well as various remedies for the relief of pain, such as hot fomentations, poultices, flying blisters, opium and morphin. Such is a general idea of treatment, but there are differences of opinion and practice in regard to details. How long should strict rest be enforced? For an ordinary case I suggest a period of three weeks as an average, but that period might often with advantage be extended. As regards diet, I agree with Dr. Little that we must not think only of the ulcer: we must bear in mind the constitutional condition of the patients and the necessity for putting them in a favourable

Digitized by Google

condition for promoting healing of the ulcer. In cases of recent hæmorrhage I put the patients for a short time on nutrient injections. This, however, I regard only as a temporary expedient. It is not usually well tolerated for a period of more than a week or ten days. In other cases I have been in the habit of keeping the patients for three weeks at least on milk and strained soups or beef juices. In recent times there has been a considerable revolt in Germany against too strict a dietary. Leube allows rice, sago, soft-boiled or raw eggs, calves' brains, and even boiled chicken and pigeon at the end of ten days, and scraped raw meat by the seventeenth day. Lenhartz allows raw eggs with a little wine, milk freely, and sugar even from the first day. Senator allows throughout gelatine, jelly, cream, almond solution, and iced butter. The general drift of such advice is to allow a considerable amount of liberty even from a very early stage, and even where hæmorrhage has been present. These recommendations have one point in common—the avoidance of the evils of under-nourishment. A diet rich in albumen has the further advantage that it tends to check hyperacidity. Probably in these islands we have gone to the other extreme and leaned rather to the advocacy of a dietary too exclusively designed for sparing the stomach. In view of German practice, I have lately given myself more liberty, though not to the extent of the quotations which I have made, and I have not yet seen a case where such liberty has led to mischief. I have allowed whipped egg, animal jellies, and butter and cream from an early stage of these cases. There is much room for discretion in such matters, and the amount of pain is an important guide.

I have already mentioned the use of alkalis and bismuth. I am not inclined to think very highly of nitrate of silver, nor am I disposed to favour the washing out of the stomach. I attach great weight to care during convalescence. Much physical rest and cautious return to a generous dietary are

Digitized by Google

points of great importance. In the treatment of hæmorrhage I recommend absolute rest, an ice-bag to the epigastrium, nutrient enemata, but I feel doubtful as to the ordinary astringents. The symptoms of partial pyloric obstruction may be mitigated by a carefully regulated diet and occasional lavage.

In my experience recovery in a good many cases has not been complete, more or less pain and discomfort remaining after food. It is probable that in such cases we are dealing with a partially healed ulcer, or that adhesions have taken place. A second course of medical treatment might be undertaken, but I think the time has then arrived for invoking the aid of surgery.

In relapsing cases particularly I recommend the consideration whether operative measures should not be resorted to. We may be able in this discussion to draw the line more clearly between the place of the physician and the surgeon in such cases. Nothing is more desirable than complete harmony and co-operation between both sides of the profession. The physician should recognise that the intervention of surgery in this field of practice has been a great boon to suffering humanity; he should be careful not to postpone too long his appeal for assistance to a surgical colleague, and he should seek that assistance in most, if not all, relapsing and chronic cases. On the other hand, the surgeon should recognise that his assistance is required only in a minority of such cases; that a full and even patient trial of medical measures is always the first duty; he should be chary of mere exploratory operations which are likely to redound neither to the credit of surgery nor to the advantage of the patient, but in such cases as those described by Sir Charles Ball, where the indications are fairly clear, he should intervene with promptitude and operate with boldness. Such intervention would undoubtedly lead to the best results.

Digitized by Google

CONTRIBUTION TO A DISCUSSION ON THE TREATMENT OF GASTRIC ULCER FROM A SURGICAL STANDPOINT.

By ARTHUR BROWNLOW MITCHELL, B.A., B.Ch., R.U.I.;
Surgeon to the Royal Victoria Hospital, Belfast;
Surgeon to the Ulster Hospital for Children and Women.

[Read in the Section of Medicine, January 17, 1907.]

GASTRIC ULCER is a much more serious disease than is generally recognised. The mortality is very difficult to estimate. Mikulicz [1] puts it at twenty-five per cent., and states that at least twenty per cent. of chronic cases develop phthisis, while not less than five per cent. perforate. If these figures are even approximately correct, we are bound to consider much more frequently than we have yet done the question of operative treatment. Do not let us make any mistake; an abdominal operation of this kind is a serious thing to propose, and serious to carry out; but in competent hands the risk should not exceed five per cent.—in other words, it is no greater than the danger of perforation, in which the patient already stands.

"Exploratory" operation is, in my opinion, an unscientific proceeding. There should always be some definite diagnosis, and operations should be undertaken with a deliberate object in view. In other words, we set out intending to perform posterior gastro-jejunostomy, but owing to various complications this procedure may require to be modified. This is very different, however, from *opening the abdomen to see whether it ought to have been opened*, for that is really what an exploratory operation generally means. Not at all infrequently there is little that is pathological to be seen in the stomach; but a few

Digitized by Google

silvery adhesions here or there, or some enlarged glands in the omentum, will be found on careful examination, indicating damage to the mucous membrane.

Tubercular disease of the stomach is, I think, commoner than is generally believed. I have had three undoubted cases in forty-eight consecutive operations. They all benefited decidedly, but progress is slower than in ordinary ulcer.

As to cure, my impression is that a properly performed gastro-jejunostomy may pretty confidently be relied upon to cure ninety per cent. of cases, and those in which failure occurs will be found to have some other ailment militating against success.

I have not yet had occasion to operate for the arrest of acute hæmorrhage, but do not feel inclined to do so. For recurrent hæmorrhage gastro-jejunostomy is the treatment.

Operation is not to be recommended for all cases of ulcer, but unquestionably it should be resorted to more frequently than it has been. After a fair trial of thorough medicinal and dietetic treatment without satisfactory results, operation should at least be considered before the health of the sufferer is undermined, and the stomach so deformed or adherent as to require some elaborate and dangerous surgical procedure. The duration of treatment is a point of some importance. One month may be regarded as the full time for complete cure by operation. Under medical treatment a patient is fortunate if at the end of a month she is timidly attempting an average diet.

[1] Bergmann System of Surgery. Vol. IV., p. 306.

Dr. Cox said his conviction and experience had been that the majority of cases had a tubercular history. Whatever the subsequent development had been, they were primarily tubercular as regards causation. From that point of view he regarded Dr.

Digitized by Google

Lindsay's remarks as regards the question of generous diet very important. The ulcer must be regarded not primarily as a local condition, but as an outcome of constitutional causes. He thought it was criminal to persevere for years with the washing out of a stomach which had baffled careful treatment; operation was clearly demanded, and it was unfair to the patient, to the surgeon, and to humanity to wait until a condition of hopelessness had been reached.

Digitized by Google

MANIACAL CHOREA.

By J. MAGEE FINNY, M.D. Dubl., F.R.C.P.I.;
Physician to Sir Patrick Dun's Hospital;
President of the Royal Academy of Medicine in Ireland.

[Read in the Section of Medicine, March 1, 1907.]

Chorea is one of the commonest of all nervous affections met with in hospital, as well as in private practice, and is very often associated with rheumatism. It presents varying degrees of severity, from the mildest form, consisting of awkwardness of movement and facial grimaces, to incessant, irregular movements and contortions, with such jerking and throwing about of the limbs, that the patient must be confined to bed, and watched to prevent her from injuring herself.

In these latter cases (chorea gravis) some delirium, with delusions, is not uncommon. But there is yet a still more grave form of chorea, in which mania may supervene, and so completely overshadow the motor disturbances that the true nature of the disease may be overlooked and the patient sent to an asylum.

So wide is the difference in the symptoms that it seems hard to realise that it is really not another and a new disease, but only an exaggerated variety of the chorea simplex of Sydenham.

The following is an example of maniacal chorea, or "chorea insaniens":—

Case.—From notes taken by Mr. Thos. Graham, Resident Pupil.—Annie O., aged seventeen years, unmarried, was admitted to Sir Patrick Dun's Hospital on June 14, 1906, suffering from marked choreiform movements, particularly of the left arm and hand. Six years ago she was treated in

Digitized by Google

another hospital for enlarged cervical glands. She has enjoyed good health ever since, up to a fortnight ago, when she was treated for rheumatic pains in the legs; two days before admission these pains left her, and then the choreic movements became manifest. The patient herself says she had a "fright," but could give no explanation of its nature, and the accuracy of her statement is questioned by her sister and mother, with whom she lived. She refers her trouble to her head, and said her mind was being affected. The motor disturbance is not confined to any part of the body—the trunk, head, arms and legs participating, but the left side was most affected; the eyes rolled about, and she continually uttered a sort of sob, and had delay and difficulty in answering questions, which she did in a sudden, jerky fashion, but with intelligence. The deep reflexes were not increased. The pulse was about 80, and of low tension; temperature 98°. A systolic murmur was distinctly audible in the mitral area. The skin over the lumbar vertebræ was congested, but not broken, and the toes were of a dusky blue colour. A mixture of ammon. brom. and liq. arsenicalis was ordered; and chloral, in 15 grs. doses, was given at bedtime. She did not sleep, but became so noisy and obstreperous with shouting and screaming that she was moved into a ward by herself, and our House Surgeon considered she was a case of acute mania, and suggested her removal to the Richmond Lunatic Asylum. The choreic movements next day were very violent, and in a day or two after admission, in spite of all care, she barked her elbows, rubbed her heels sore against the bed clothes, and with the heel of one foot abraided the skin of the opposite instep. Her back was also stripped over the sacrum. She could hardly speak, but at times would become calm for a few minutes, and could be fed with soft, thick food. She was given $\frac{1}{200}$ gr. of hyoscin hydrobrom., with good results for a few hours, but a second dose was useless either to calm the motor excitement or to procure sleep, while 20 grs. of chloral gave about three hours' sleep. She was quite maniacal at times, striking out, shouting and screaming, or uttering deep, raucous sounds, refusing food at times, and then taking it readily. She passed her motions and water involuntarily in the bed, as, owing to the extreme violence of the muscular system, the use of a bed pan was out of the

Digitized by Google

question. The urine obtained on one occasion was found to be acid, sp. gr. 1014, and free from albumen and sugar; it contained calcium oxalate crystals. During the short sleeps obtained by chloral she was perfectly motionless, and her breathing was quiet. The temperature, which was normal on admission, rose to 100° on the evening of the 18th, the fourth day, and fell again to 97.5° next morning. It remained normal till the evening of the 21st, when it shot up to 103.4°. The pulse, when it was possible to count it, was usually about 80–90, but on the morning of the 21st it rose to 130. The murmur in the heart was audible all through, and proportionately as the heart beat more violently in the times of great motor excitement it became more distinct.

During the 19th and 20th her condition continued in much the same state—periods of calm, in which she would say some words intelligently, such as "no, thank you, sir," alternated with periods of wild activity in which she had to be held down in the bed, and in which she flung her legs and arms about in the strangest fashion. Owing to the involuntary biting by her teeth, and the rubbing of them by her hands, her lips were sore and bleeding. She was indeed a pitiable object. The mental disturbance was maniacal in type—at one time with delusions, and again with hallucinations, and lastly one of semi-coma. In the afternoon of the 21st she became particularly violent, after a rather calmer forenoon, and remained in a continuous state of turbulent activity till about 9 30 p.m., when I went to see her. She could not be restrained by six attendants from knocking herself about, and all the wadding and padding and bandages which had been put around her limbs to prevent her injuring herself were rubbed or torn loose. A strait waistcoat was then put on and her legs wrapped round in a sheet. Although these means prevented her springing out of bed and injuring her limbs, she kept up, nevertheless, an incessant wriggling and movement, while she was bathed in perspiration. She had had chloral, a hypodermic of morphin, hyoscin, but the only remedy that succeeded in calming her was chloroform inhalation. Under it she became quite quiet, and the various appliances to keep her in bed were loosened, so that she was not oppressed in any way that night. She slept quietly, and took nourishment fairly well at times. Rectal feeding could not be managed.

Digitized by Google

Next day, however, she looked very ill. The heart was beating excitedly (the mitral systolic murmur being present), the pulse was 140, very compressible, respiration 44, and temperature, which had risen to 103.4° at 7 p.m. the previous evening, was 102.4° at 7 a.m., 101.8° at 10 a.m., and 101.4° at 2 p.m. The motor disturbance was much less, and she was quiet, but in a semi-comatose condition. Loss of flesh had been noticeable for some days, but now that the limbs were quiet they were seen to be extremely emaciated. This was the 9th day of her sojourn in hospital. At 4 p.m. she suddenly became unconscious, her respirations very laboured, and her extremities and face cyanosed; $\frac{1}{100}$ gr. digitalin and $\frac{1}{20}$ strychnin were immediately injected hypodermically, but without avail, and she died in five minutes.

The *post mortem* examination was made on June 24th.

Dr. O'Sullivan, F.T.C.D., Pathologist to the Hospital and Lecturer on Pathology in Trinity College, Dublin, has kindly supplied me with the following report :—

The longitudinal sinus contained a small quantity of mixed clot. The vessels of the cortex of the brain were engorged. A very small amount of fluid was found in the lateral ventricles. The brain presented no abnormal appearances to the naked eye. It was fixed in formalin, and pieces were subsequently removed from various parts and examined microscopically. The only portion which presented any abnormal appearances was in the Rolandic Area. Here some of the small vessels in the cortex were thrombosed. In others, collections of cells with oval nuclei lay heaped up in the perivascular lymphatic spaces, and there were clumps of what appeared to be broken up nuclear material in these spaces. The spinal cord was also examined, and presented nothing abnormal. The cerebro-spinal fluid was examined bacteriologically in the media recommended by Wassermann for the cultivation of the coccus found by him in rheumatic cases, but the culture remained sterile, and no micro-organisms were found in the meninges on section. The other organs of the body showed no abnormality, with the exception of the heart, which was in a very atrophic condition, and some calcified tubercular glands in the mesentery and in the root of the lung.

Digitized by Google

Remarks.—The prominent features presented by this case were :—Rheumatic pains in the legs for a fortnight, upon which chorea supervened. A mitral systolic murmur, audible on admission, of varying loudness, and lasting up to the ninth day—the day of her death. The pulse quiet and regular, about 80 each day up to the last three days, when it rose to 110, 130, 140. The temperature normal or sub-normal until the day before death, when it touched 103.4°. The choreic movements were slight for about forty-eight hours, and then became so violent that two special nurses were required to watch her and prevent her from falling out of bed and from striking her limbs against the parts of the bed. (The idea of treating her by placing her mattress on the floor, with pillows around, was considered, but discarded in favour of the bed with nurses at either side.)

The psychical phenomena were prominent, out of all proportion, and at first quite overshadowed the motorial. They differed, however, by the absence of incoherent speech and wild garrulity, from the forms one is accustomed to associate with the acute delirium of fever or acute mania.

Another point worth noting was the occasional, though temporary, mental calm which my visits, once or twice a day up to the last three days of her life, seemed to produce. At these times she would cease shouting, the movements became quieter, she could always understand what was said, and sometimes she succeeded in speaking and making intelligent replies, such as "yes, sir;" "no, sir;" and "thank you, sir."

Treatment by medicines totally failed to have any effect on the course of this terrible disease, and the only help it gave was by securing some hours of sleep and muscular rest during sleep. The drug which seemed most useful for that purpose was chloral. On two days $\frac{1}{200}$ gr. of hyoscin hydrobrom. (once repeated) was successful in calming the violence

Digitized by Google

of the delirium, but it failed to have any effect the last two days of her life; while morphin hypodermically was practially useless.

The occurrence of a systolic murmur at the mitral area, which was considered on admission to be probably due to rheumatic endocarditis of some two or three weeks' duration, must now, in the light of the autopsy, be judged to have been dynamic, and due to simple and acute ventricular dilatation. It is not to be explained on the grounds generally accepted—viz., anæmia and choreic cardiac excitement.

The foregoing case is an example of one of the rarest diseases to be met with in the practice of Medicine. It is one of the most grave of the varieties of chorea, whether regard be paid to the extreme violence of the muscular movements, the psychical disturbance, or its acute course, usually terminating in death. "Truly a terrible disease is maniacal chorea" (Osler).

In evidence that this variety of chorea is very uncommon I would point to the very scant literature on the subject, the paucity of published clinical records, and the very short description it receives in standard works of reference on medicine and on insanity.

Two of the most recent works I have been able to consult are "The Text-book of Psychiatry," by Bianchi and MacDonald, 1906, and "Clinical Psychiatry," by Kroepelin and Johnston, 1904. No reference to "maniacal chorea" appears in the index of either, while under the title of "Choreic Insanity" a very different condition is described.

Bianchi writes: "A choreic subject is always mentally affected, the character of the child or young adult is changed; he becomes irritable and fearful, his sentiments are altered, his power of attention is defective, and he may suffer from hallucinations."

Digitized by Google

Kroepelin writes: "Senselessness and bewilderment, with choreic movements, occasional hallucination, a morbidly cheerful mood and great restlessness, with rapid physical sinking, are particularly diagnostic of choreic insanity."[a]

From these excerpts it is evident that these authors never met with a case of maniacal chorea, and it is a matter of regret, if not of negligent omission (to say the least of it), that they should not have made themselves familiar with published cases of this disease in the British Isles.

The same adverse comment is applicable to the majority of books I consulted, be they written by specialists in mental and nervous disease, or text-books on the Practice of Medicine. Thus Mercier, Bevan Lewis, Hack Tuke, von Ziemssen, Quain's Dictionary, Reynolds' System of Medicine, Strümpell and many other text-books in medicine give no description of any such marked psychical complication as was portrayed by my case. In some, such as Ross and Allchin, it is said "Chorea in adults is sometimes followed by acute mania." Gowers makes the short comment—"The mental state may not appear till the disease be well developed, or it may precede the chorea. The latter may be slight or quickly cease, while the mental disturbance continues in an intense form. There are often delusions, sometimes wild, violent excitement, without the garrulity common to ordinary mania. This excitement may be followed by apathy or dulness." However, Hilton Fagge, Clifford Allbutt, Roberts and Osler are notable exceptions, and they attest to the reality of the extent and the gravity of maniacal chorea; while Clouston (Mental Diseases) gives in detail a typical case of rheumatic chorea with acute maniacal insanity.

A fatal termination of chorea in children is practically unknown, but it may occasionally occur between the ages of fifteen and twenty-five.

Digitized by Google

Dr. Hanford[1] in thirteen years (1875–1888) had 154 cases of chorea, with 4 deaths—that is, 2.6 per cent. This number tallies very closely with the 2 per cent. of the collective investigation report of the British Medical Association[2] (439 cases, with 9 deaths).

The association of pregnancy or parturition with chorea gravis is more than an accidental coincidence, and such cases, more than others, add to the death-roll in chorea. But, perhaps, of all the grave varieties maniacal chorea (chorea insaniens) is the gravest as well as the most fatal. Of 23 cases collected from various sources by William Gay, M.D.,[3] complete recovery took place in 10, death occurred in 8, one was followed by permanent weakmindedness, and 4 were lost sight of, having been sent to asylums.

The duration of these cases may be very short; death occurred in my case on the ninth day; in some cases it happens as early as the sixth, or even the second day, although generally not until after some weeks. The mode of death seems to be due to the exhaustion resulting from the wild muscular movements, inanition, and want of sleep and rest. Many cases end in unconsciousness and coma, although the intellect may remain clear almost to the last—a fact first noticed by Wilks, and confirmed by subsequent observers.

Dr. Tuckwell[4] had his attention first called, in 1861, to maniacal chorea in a woman, aged twenty-four, by Professor Trousseau. He saw a similar case in Vienna in 1862 in a pregnant woman, aged twenty; and he describes a case of a boy, aged seventeen, under his own care—"probably embolic"—in 1867. All three had furious choreic movements, maniacal delirium set in early, and death ensued within ten days of the onset, after semi-coma, with partial or complete cessation of the movements. In each of these cases a mitral systolic murmur had been audible during some part of the illness, and a fringe of beads or bright warty vegeta-

Digitized by Google

tions, the size of a pin's head, was found at the mitral valve. Dr. Tuckwell analyses 34 fatal cases, recorded up to 1867, to which an autopsy was attached. In 4 the heart was healthy, in 5 no mention was made of its condition, and of the remaining 25, 20 had vegetations on the valves. He attributes the fatal results to the vegetations being set free and becoming embolic in the brain and probably also in the cord, and thus favours the theory attributed to Kirke and supported by Hughlings Jackson and Sir William Broadbent.

On the other hand, as negativing the embolic theory and as bearing a close resemblance to the case of Annie O., I would refer to two fatal cases of acute chorea, with insanity, reported by Dr. Evan Powell,[5] Medical Superintendent, Nottingham Borough Asylum, in which there was a complete absence of valvular disease or cerebral embolism. The first was a male, aged nineteen, who had been cured of a second attack of rheumatism ten days before the chorea developed. In three days' time acute mania set in, with delusions and hallucinations and great violence, and death ensued by coma after fifteen days, during which there were lulls in the tempest; and in these quiet intervals the mind was quite clear to all that had occurred. A mitral murmur was present.

The second case was a female, aged twenty, without any history of rheumatism or heart disease. After fourteen days of chorea, insanity and hallucinations of hearing and sight set in, and it took four people to hold her in bed. She was sent to the asylum, and died in a week, but she was quite conscious, and her mind was clear up to the last two days.

The autopsy in each case was made by H. Hanford, M.D.,[6] and the only abnormal feature present was hyperæmia of the brain. After hardening he found (*a*) thrombosed vessels in the anterior cornua of the cord; (*b*) hæmorrhages into the lymph sheaths; (*c*) hæmorrhages into the anterior horns, causing

Digitized by Google

destruction of the nerve tissue; (*d*) hæmorrhages into the deep transverse fibres of the pons. He concludes that the "numerous hæmorrhages from small vessels as well as capillaries, the thromboses, and general dilatation of vessels, afford evidence of a very unusual degree of vascular engorgement of the nervous centres during life."

These cases, while they by no means conclusively prove that the pathological changes discovered in the nervous centres were the cause of the psychical disturbances, negative the theory of emboli, as there was an absence of mitral valve disease in either.

Still more recently further evidence against the embolic theory has been adduced by Drs. Poynton and Gordon Holmes in their admirable contribution to the pathology of chorea (*Lancet*, 1906). They found, on microscopical examination of three cases of fatal chorea, "very little evidence of embolism," although great hyperæmia was present, with thrombosed vessels in all parts of the brain.

My case is practically another of the same type, as there was neither mitral valve disease nor cerebral embolism. From what I have stated, the embolic theory, as causative of chorea—be it chorea major, chorea minor (Sydenham's chorea), or the maniacal type illustrated by my case—can be no longer tenable. Rather must we recognise the difference in the severity of the choreic manifestations to be due to the presence of a toxin, and to the virulence or mildness of its action on the nerve elements of the cerebral cortex and of the lower nervous centres. In direct proportion as the psychical and the higher centres of ideation and volition or the motor centres are those most invaded, so the symptoms each case may present will be either those of mania and other disordered mental states or those of incoördinate muscular contractions and movements of the body and the limbs.

The intimate association of chorea and rheumatism has been

Digitized by Google

long recognised, and has of late years been more and more insisted on, and the consensus of opinion of many *clinical* observers is in favour of there being one common underlying cause for each of them. It is a well-recognised fact that the first indication of rheumatic fever may be chorea, and that myocarditis, endocarditis, or pericarditis may equally occur in either.

Sir Dyce Duckworth,[7] in his paper read before the Medical Congress at Lisbon last June, emphasised the view that chorea should be considered as "cerebral rheumatism." He has for many years consistently maintained the intimate relationship between the two diseases, and clinical experience tends, with increased authority, every year to confirm the truth of that relationship.

In 1892, Clouston,[8] writing upon the varieties of insanity, under the heading of "Rheumatic Insanity," describes the typical case of rheumatic chorea with acute maniacal insanity, to which reference has been made above, and asks the question—"Was the rheumatism the true cause of the mental symptoms of the chorea or of both?"—and asserts his view, from a *clinical* standpoint, that the poison of rheumatism was the true cause of the insanity.

It may be interesting to note, *en passant*, that this view is by no means a new one. It simply reasserts what was propounded in 1850 by M. Germain Sée.[9] His expression is—"that chorea was due to the rheumatic diathesis acting on the brain and spinal cord." Trousseau,[10] who quotes Sée's view, and acknowledges its probability, did his best to refute it and to prove that chorea was a purely functional derangement, similar to hydrophobia and tetanus. The ground upon which he based his theory was that no gross evidences of inflammation of the brain or its membranes are present in fatal cases of any of these diseases.

It is curious to see that now, in these latter days, the older

Digitized by Google

views—based on clinical observation—have again gained ground, and that the keen and exhaustive researches of scientific minds, combined with highly skilled bacteriological dexterity and acumen, have shown that the pathological conditions of these so-called functional nervous diseases are really due to microbic infection and toxic influences. The first rays of light which illumined this difficult subject—after which so many thoughtful physicians were groping in the dark, and feeling after the truth, if possibly they might find it—was the discovery by Wassermann, in 1899, of a diplococcus which he had isolated from the cerebro-spinal fluid and inflammatory exudations of a patient who had died of acute rheumatism and chorea. With this diplococcus he had experimentally inoculated rabbits, and produced in them polyarthritis.

Drs. Poynton and Paine, in 1900, confirmed the observations of Wassermann, and found the diplococcus in a case of chorea. In 1905 they reported another case of fatal chorea, in which they demonstrated its presence. Isolating the diplococcus from the cerebro-spinal fluid they had produced by inoculation arthritis, endocarditis and pericarditis in a rabbit.

In a valuable paper (*B. M. J.*, December, 1906) Dr. Beattie accepts the theory of a bacterial origin of rheumatic fever, and deals with the objections raised against it, while he called the organism *Micrococcus rheumaticus*.

It is not my intention to follow further this most interesting branch of the subject, but would refer to the lucid and convincing contribution on the pathology of chorea which Dr. F. J. Poynton and Dr. Gordon M. Holmes published in the *Lancet*, October 13, 1906, and from which I have already freely quoted above. These observers found the diplococcus in the brain and its membranes, and also in the diseased valves of the heart, in three fatal cases of chorea and rheumatism, and they assume that the presence of micro-organisms goes far to prove that these inflammatory pathological changes are

Digitized by Google

due to a toxin derived from these micro-organisms, and that chorea is caused by the action of bacterial poisons on the brain,

"The conclusions they come to, in their research on this subject, in the first place, support the clinical evidence that chorea is a manifestation of acute rheumatism; and secondly, that the demonstration of diplococci in each of their three cases is a striking confirmation of the assertion that the *Diplococcus rheumaticus* is the infective agent in acute rheumatism."

My case does not exactly add support to the views just stated, in so far as no micro-organism was discovered by Dr. O'Sullivan in his careful bacteriological examination of the brain and spinal cord. I have, however, felt it my duty to record it, as a contribution to the literature and clinical history of this most interesting subject, since it is only by the accumulated records of cases of chorea, in which a full and reliable pathological report is made by capable bacteriologists, that a sure foundation can be laid and a true pathology erected.

REFERENCES.

[1] Brain. Vol. XII. P. 129.
[2] Brit. Med. Jour. Feb., 1887.
[3] Brain. Vol. II. P. 151.
[4] Med. Chir. Rev. Vol. XL. 1867. P. 506.
[5] Brain. Vol. XII. P. 157.
[6] Brain. Vol. XII. P. 151.
[7] Brit. Med. Jour. P. 1454. 1906.
[8] Mental Diseases. P. 485. 3rd edit. 1892.
[9] De la Chorée Memb. and l'Acad. de Med. T. XV. 1850. (Quoted by Trousseau.)
[10] Clinique Medicale. 1868. Vol. II. P. 786.

Dr. J. Craig said that rheumatism had scarcely yet got its proper place in the text-books. Some few years ago it was described under the head of diseases of the articulations; now it was described, rightly, as a specific fever. Associated with the toxæmia produced by the micro-organism there was always a certain amount of acute dilatation of the heart in the early stage,

Digitized by Google

with a cardiac murmur that would subsequently disappear. The communication had tended to associate in their minds the great connection there was between chorea and rheumatism : the author had shown that chorea was merely a complication or manifestation of the rheumatic state. In treating cases of chorea he had retracted considerably from his belief in the administration of large doses of arsenic

Dr. Spencer Sheill recalled a communication of his dealing with two cases of chorea, both associated with pregnancy, one of which ceased when the uterus was emptied, and the other of which was perfectly described by Dr. Finny's case, with the exception that there was no rheumatic history. He regretted that in the latter case the autopsy was incomplete and unsatisfactory.

The President of the Academy, in replying, said if they were agreed that the poisons of rheumatism and chorea were identical, and affected different parts of the body through the toxin, it would help very much to explain some otherwise very difficult phenomena of clinical experience : it would make them very cautious of making little of cases of chorea which came into hospital. Choreiform movement was only a small expression of a serious poison which was intoxicating the patient and injuring the nervous and muscular system.

Digitized by Google

MOVABLE SPLEEN.

By T. G. MOORHEAD, M.D. Univ. Dub., F.R.C.P.I.;
Physician to the Royal City of Dublin Hospital.

[Read in the Section of Medicine, March 1, 1907.]

Excessive mobility of the spleen and dislocation of the spleen from its normal position are conditions of considerable rarity, judging from the records scattered through the literature, but they are still sufficiently often met with to render a remembrance of their possibility most important in abdominal diagnosis. In common with the other solid viscera which are in contact with the under surface of the diaphragm, the spleen moves up and down with the respiratory contractions of that muscle, and it is consequently necessary to limit the term movable, floating or wandering spleen to cases in which the organ has actually slipped or is capable of slipping from its usual bed into some other part of the abdomen. The additional term dislocation of the spleen is occasionally used, and is confined to cases in which the spleen, after leaving its normal site, becomes attached by adhesions in some other spot and again loses its mobility.

The ætiology of the condition has happily not given rise to so many theories nor to so much discussion as that which has centred round the more commonly met with movable kidney, and this is probably due to the fact that, as a rule, definite pathological changes can be detected, in most cases of movable spleen, when such come under observation, either at operation or at autopsy. The most important of these changes, from the ætiological point of view, are as follows:—

(1) *Enlargement.*—All writers are agreed in stating that a

Digitized by Google

movable spleen is almost always bigger than normal, but that this is not an invariable condition is proved by the occasional record of cases in which no enlargement is found. Such cases have been put on record by Freudenberg[1], Martin, and others. In considering enlargement, also, it is necessary to recollect that the dislocation itself, by leading to pressure upon and twisting of the splenic vessels, may cause great passive engorgement, and that thus the large size may be a secondary and not a primary phenomenon. Still the fact remains that in most cases a cause for enlargement has existed before displacement became noticeable.

(2) *Relaxation of the Splenic Ligaments.*—This condition is, of course, necessarily present in order that displacement at all may occur, and will naturally be favoured by any cause, such as enlargement of the organ, which puts an unusual strain upon them. It has also been suggested that relaxation may result as a developmental defect, while its occurrence in cases of general splanchnoptosis is to be expected. In this connection it may also be mentioned that a movable left kidney is liable to be followed by general loosening of the peritoneum in that neighbourhood, and may thereby come to exert an important causative influence. This last statement is illustrated by the case that I am bringing before you to-night, and also by a case reported by Grieffenhagen[2] in which, some time after a nephropexy of the left kidney had been performed, the condition apparently returned, but, on operation, turned out to be a floating spleen. As a factor in complicating the diagnosis, previous knowledge of the existence of a movable kidney is most important.

(3) *Trauma.*—This probably acts by causing a rupture of the splenic ligaments, and at the same time a sudden dislocation of the spleen. Its importance is borne out by many reported instances, but the most striking of these that I have come across is a case reported by Ssawiljew[3] in a perfectly

Digitized by Google

healthy boy, aged four years, in whom a greatly displaced spleen was found immediately subsequent to a severe fall.

Before leaving the subject of ætiology it may be as well to refer to the fact that the condition is much more common in women, and is particularly found in those who have a relaxed abdominal wall.

The displaced viscus may be found in almost any part of the abdomen, and has even located itself in such an unlikely spot as the right iliac fossa, but the most common places for it to occupy are the cavity of the true pelvis, and the left iliac fossa. Within the pelvis it may give rise to numerous disturbances, and has simulated and frequently been mistaken for tumours and cysts of the uterus and its appendages. In the left iliac fossa it is most likely to be mistaken for a renal tumour, but here also it may resemble an ovarian cyst, or some growth of the mesentery or omentum. Occasionally even a sense of fluctuation has been detected in the lump, as in a case recorded by Croly[4] in 1896, and in such a case the diagnostic difficulties would be augmented. At first sight it may seem curious that difficulties in diagnosis should exist at all, as the shape of the spleen is so characteristic, but when it is remembered that displacement is always accompanied by axial rotation, and also by engorgement, which latter tends to alter the shape, this difficulty is easily explicable. Again, the normal shape of the spleen is regarded as being largely produced by the pressure and counter pressure of adjacent viscera, and therefore I think we are justified in concluding that some change of shape will result from an alteration of the manner and direction in which those forces are applied. The axial rotation is of such a nature as to bring the diaphragmatic surface downwards and forwards, and consequently to cause the characteristically shaped borders and edges to be turned away from the examining hand. What relation the spleen maintains as a rule to the colon I have

Digitized by Google

been unable to determine by a search through the literature, but my own case shows that it may, at any rate, at times slip down posterior to the descending colon. The rotation that occurs may sometimes result in an actual twisting of the pedicle, and when this has taken place thrombosis of the splenic veins or artery, atrophy of the spleen, complete necrosis, or even complete separation of the spleen from all attachments may occur. More usually, however, none of these accidents take place, and the symptoms are entirely referable to pressure upon neighbouring viscera. Such pressure may prove serious, and even give rise to intestinal obstruction.

The case which I wish to bring before you to-night, and which has given rise to the foregoing remarks, was one of a movable spleen situated in the left iliac fossa, and in which the diagnosis was only made at operation. It, in fact, presented us with a typical example of "the astonishment which follows the discovery of these movable spleens in the operating theatres," and to which Bland Sutton[5] graphically refers in his interesting paper on this subject. The notes of it are as follow :—

L. G., a girl, unmarried, aged twenty-nine, first came under my care about two and a half years ago suffering from serious symptoms of cardiac failure. There was a history of numerous attacks of rheumatic fever and of long-standing cardiac trouble. Some years previously she had had a severe fall from a ladder, which had laid her up for some weeks, but which did not appear to have led to any permanent ill effects. Two months before her admission to the City of Dublin Hospital her left knee had been excised at another Dublin hospital for what she stated to be, and for what presumably was, tubercular disease.

Examination at the time revealed the presence of double mitral disease and of adherent pericardium, and in the abdomen some slight liver enlargement was noted. In addition, the left kidney was freely movable, and its entire shape and size could be made out with little difficulty, although the abdominal wall was

Digitized by Google

quite well developed. On mentioning, in the patient's presence, that her kidney was movable she informed me that a doctor who had examined her several years previously had told her the same. The spleen was not palpable, but the area of dulness corresponding to it was rather more extensive than one usually finds. The urine at this time contained albumen, but no pus. Nothing else noteworthy was present; the patient rapidly improved, and left hospital after six weeks.

During the next couple of years she was re-admitted on three different occasions. On the first two of these her symptoms did not differ from those above referred to, but on the third occasion she complained somewhat of pain in the left side of the abdomen, and on palpating here a distinct lump could be felt, which moved freely up and down, and was exquisitely tender on pressure. The tumour felt about twice the size of a normal kidney, but it rapidly decreased in volume, and nothing at all could be felt at the time the patient left hospital, two months subsequent to her admission.

I did not see her again for six months, when she was again admitted suffering from cardiac asthma and complaining very much of her left side. Examination now revealed the presence of a tumour in the left lumbar and left iliac regions, and of a much greater size than it had been on the previous occasion. The lower margin of it could be distinctly felt to be rounded, and an obscure sense of fluctuation was obtained over it. The upper margin disappeared under the costal arch and could not be felt. On palpating the growth it was found to move up and down slightly, while percussion revealed the presence of intestine anterior to it, and yielded a dull note at the side, from about the line of the anterior axillary fold back to the spine. It was still intensely tender to touch, and severe paroxysms of pain, lasting often for over an hour, were experienced in the region once or twice daily. The urine was still albuminous, but free from pus, and the only other symptom present was great frequency of micturition, but without bladder pain. The temperature was normal, and there was no leucocytosis.

The diagnosis that I arrived at was that of hydronephrosis secondary to movable kidney, and, as I thought that surgical intervention might become necessary, I asked my

Digitized by Google

colleague, Mr. Stoney, to see the case with me. He concurred in the diagnosis, and, at my request, made a cystoscopic examination. This was necessarily unsatisfactory, as it was thought inadvisable to give an anæsthetic, and the patient's condition made her extremely sensitive, but as far as it went it was in favour of the diagnosis otherwise arrived at, as no cystitis was found to account for the frequency of micturition, and the quantity of urine obtained from the left kidney by the segregation method was less than from the right. We, however, decided that, having regard to the condition of the heart, it was better not to operate unless signs of suppuration within the sac occurred. This determination seemed justified by the subsequent course of the case, as within three days the tumour noticeably diminished in size, and finally almost completely disappeared. This last event was regarded as confirming the diagnosis arrived at, even though no great increase in the urine passed took place, owing, it was supposed, to the gradual nature of the subsidence.

The patient was soon after admitted into the Incurable Hospital, and I thought I had seen the last of her, but not so, for early in May of this year she returned to me saying she was worse than ever, and referring all her troubles to the abdomen. The tumour that I have already described was again present, but rather lower down than before, reaching now almost to Poupart's ligament, and with a little difficulty the hand could be pressed backwards between its upper border and the ribs. Both upper and lower borders felt rounded to the touch. It was fairly movable in a vertical direction, but not at all horizontally, and once more was dull at the side and the back, but resonant in front. The differential diagnosis between renal, splenic, and other tumours was discussed at length, and the original diagnosis of hydro- or pyonephrosis was adhered to, but with the strong suspicion now that a pyonephrosis was present. The reasons for suspecting pus were as follows :—(1) The patient's temperature, which was above normal on admission, became intermittent and "septic" in type soon after, ranging often from 97° F. to 103° F. within twenty-four hours. (2) The patient began to suffer from daily rigors, many of them of a severe type. (3) There was now a considerable amount of pus in the urine (catheter specimens), and no tubercle bacilli were present. The urine was acid in reaction. (4) There

Digitized by Google

was much sweating at night, and the whole aspect of the patient was indicative of combined pain and toxæmia. The only point, in fact, against an accumulation of pus was the constant absence of any leucocytosis, or even relative increase in number of neutrophile leucocytes. It was not, however, felt that this last was a sufficient contra-indication to operation, more especially as the patient herself was clamorous for something to be done to relieve her, and accordingly it was decided to explore the region from the back, and to drain the supposed cyst.

Mr. Stoney operated on May 16, and on cutting down found the kidney apparently normal, while the tumour lay in front of it, and turned out to be a displaced, movable and enlarged spleen, axially rotated in the manner already referred to. The patient was not sufficiently strong to warrant any attempt to deal with the spleen, and accordingly the wound was closed. A good recovery was made, but, unfortunately, without improvement in the pain complained of, and the patient ultimately left the City of Dublin Hospital to return to the Incurables. Before leaving the tumour was found to be displaced forwards a little, doubtless as a result of the operative manipulations.

In thinking over the case the most difficult symptom that I had to account for was the extraordinary variation in size which took place in the tumour, and actually under my own observation, and it was not till I discovered Mr. Bland Sutton's paper that I was able to understand it. In this paper the author states that he has seen an engorged spleen shrink to one-third its bulk during the course of a laparotomy, and also refers to a spleen which during life extended from the floor of the pelvis to midway between the umbilicus and ensiform cartilage, and which, on being excised, contracted in fifteen minutes to a length of six inches, and in six hours to about normal size. Doubtless a twisting and untwisting of the pedicle could allow similar changes to occur, and, moreover, when the organ got smaller it would more easily return to its normal place. The resemblance thus given to an intermittent hydronephosis is obvious, and, in consequence, the

Digitized by Google

symptom deserves more attention than has hitherto been paid to it.

The origin of the pus and the cause of the intermittent temperature and of the rigors were not cleared up by the operation, and the only explanation that I can offer is that a pyelitis was present, without distension of the pelvis of the kidney, and was responsible for both pus and toxæmic phenomena. The lessened flow from the left kidney, as compared with the right, was, I presume, due to pressure upon the ureter by the enlarged and displaced spleen.

Looking over reported cases of wandering spleen that resembled hydronephrosis I can find only one or two in which marked variation in size is referred to, and perhaps the one most closely resembling the case described above is that reported by Dr. Lucy in the *British Medical Journal* for July 14, 1906. Cases of this nature are, however, unfrequent, as compared with those in which a pelvic tumour is simulated, for during the last ten years not more than four or five reports in all are to be found.

As regards the ætiology in this case, I think the continued influence of the movable kidney and of cardiac congestion must be held responsible. That it was the kidney which was to be felt slipping up and down when the patient first came under notice I have not the least doubt, and the way in which this would lead to mobility of the spleen is easily conceivable from an anatomical point of view. The pain, which is often present in these cases, is presumably the result of distension of the peritoneal covering of the viscus, and of dragging upon the various ligaments.

Into the question of treatment for movable spleen I need not enter further than to say that opinion seems pretty evenly divided between splenectomy and splenopexy. The former has most frequently been practised, and has the advantage

Digitized by Google

of yielding a permanent cure. In the case of the latter method recurrence has been more than once recorded. As already stated neither treatment was justifiable in the present instance.

REFERENCES.

[1] Freudenberg. Berlin Klin. Woch. 1896. P. 659.
[2] Grieffenhagen. Cent. für Chirurg. 1897.
[3] Ssawiljew. Deutsch. Med. Zeitung. 1901. No. 65.
[4] H. Gray Croly. *British Medical Journal.* 1896.
[5] Bland Sutton. *British Medical Journal* January 16, 1897.

Digitized by Google

PSEUDO-RENAL COLIC.

By ALFRED R. PARSONS, M.D. Univ. Dub., F.R.C.P.I.;
Physician to the Royal City of Dublin Hospital.

[Read in the Section of Medicine, April 5, 1907.]

Some one has said that a wise physician learns most from his own mistakes, next from the mistakes of others, and least from the cases in which his diagnosis was right. If this opinion be accepted as correct the case which I propose bringing before you to-night ought not to be altogether devoid of interest and profit. To me personally the instruction is of the highest order, and I venture to think that the erroneous or imperfect diagnoses made by those under whose care the patient came at one time or another were sufficiently numerous to afford some information to my audience.

James A. M. was born, in 1868, of presumably healthy parents, at all events there was no family history of heart disease, phthisis, aneurysm or bone disease. When a lad of fourteen years he entered H. M. Navy, and during the following fourteen years which he spent in the service his character and ability were such that he was coxswain on board the torpedo boat destroyer "Rocket" when he was obliged to leave the service. His health during his sailor career was good, save for an attack of Maltese fever in 1884 and rheumatic fever contracted on his way home from Burmah in 1886. He assured me positively that he never had any form of specific disease, and I accept his statement without hesitation.

In April, 1896, while coxswain on board the "Rocket," he for the first time felt pain in his left loin and side. He thought the pain might have been induced by a wetting or strain, to both of which he was liable in the discharge of his duties. He consulted two

Digitized by Google

practitioners in Plymouth, who considered the pain was of renal origin, and prescribed medicine. He continued at his post in spite of the pain till the following August, when, while on shore, the pain became so acute that he was obliged to go to bed instead of going on board. A Naval doctor was sent to examine him. He was removed to the Naval Hospital, and after nine or ten days in hospital he was invalided from the service as suffering from cardiac disease.

His captain, an Irishman, a member of a well-known family in the Queen's Co., thought so highly of him that he sent him to his people as a butler. The pain, however, increased in spite of his lighter occupation; the local doctor did what he could to relieve him, but, failing to afford him relief, he took him to a Dublin surgeon, who diagnosed a stone in the left kidney, and, in October, 1897, admitted him, under his care, to one of the largest of our clinical hospitals.

On October 16 the kidney was exposed, lifted out of its bed, and explored by a needle in five different directions, but nothing abnormal was detected. His recovery from the operation was quite satisfactory, but the pain was not relieved, and he was discharged no better on November 13, 1897. The wound had healed up quite satisfactorily. He returned to his post as butler, and after three months the pain subsided, and he remained comparatively well for nearly four years—that is, till the end of 1901. In October, 1900, he left his situation in the country and became a porter in a solicitor's office in town, where one of his duties was to carry coals up several flights of stairs. The pain greatly increased in severity, and, on his employer's suggestion, he consulted me at the Royal City of Dublin Hospital Extern Department. I admitted him on January 1, 1902. He complained of severe pain starting in left loin, coming round to front, and shooting down to left groin and inside of thigh. He had no symptoms referable to his heart.

On Examination.—He was a tall, well-built man, with black hair and sallow appearance. His temperature was normal or subnormal, and there was not a trace of albumen in his urine. He had certain adventitious sounds over his heart, to which reference will be made later on. Otherwise I detected nothing abnormal, save definite spinal rigidity in the lower part of the dorsal and in the lumbar region. There was undoubted limitation of movement

Digitized by Google

in these regions, and this sign, combined with the pain along the course of the psoas muscle, suggested to me that the patient was suffering from caries of the spine.

The diagnosis was supported by one of my then surgical colleagues, and the case appearing to be an example of spinal caries, which in its earlier stage stimulated a renal calculus, I exhibited the patient at the Biological Club, and those who examined him then saw no reason for differing with the diagnosis. After two weeks in hospital he was discharged, and returned to his former occupation as porter.

In September, 1902, he went as caretaker and porter to a firm of stock brokers. His rooms were at the top of one of the highest houses in College Green, and, though he must have had to climb the stairs several times each day, he was never conscious of any cardiac discomfort. The pain in his left side was still troublesome, but, though at times severe, it did not compel him to give up work till January 9, 1904, when he was again admitted to the hospital for ten or twelve days. Physical examination gave the same results as before, and I found no reason for varying my diagnosis. After a change to the Convalescent Home, Stillorgan, he resumed work. During the following eighteen months, at times the pain was very severe. I examined him at the extern department on several occasions, looking carefully for the formation of a psoas abscess, which the fullness of the left side of the abdomen suggested, but I found no sign of a collection of pus, and the prominence of the left half of the abdomen appeared to be due to distended bowel. The senior partner of the firm which employed him was a personal friend of Sir Charles Ball, and he asked me if he might send him to Sir Charles for his opinion. Of course, I had no objection, and I understand that Sir Charles took the same view of the case that I did, and found no evidence for any surgical interference. In September 1905, the pain became worse than ever. For nights, notwithstanding the free administration of opium, he got no sleep, so I admitted him for the third time to hospital on September 19, 1905.

The notes on this occasion are as follow:—

The patient, aged thirty-eight years, was admitted suffering from pain in the left loin, shooting round to the front into the groin and down the left thigh to the knee. The pain is con-

Digitized by Google

tinuous, and is accompanied by violent paroxysms. He has had no sleep for the past five or six nights.

On Examination.—The patient is tall, thin, sallow, with very dark hair. When standing he bends to the right side. He has practically no panniculus adiposus, but his muscles are fairly well developed. There is some pulsation at the root of his neck, most marked above the suprasternal notch.

Thorax.—There is protrusion of the left side of the thorax in the mammary region and inwards towards the sternum, with partial obliteration of the intercostal spaces. There is diffuse powerful pulsation in the fifth intercostal space, just outside or in the nipple line.

On percussion the area of superficial cardiac dulness begins on the third rib, and the deep cardiac dulness begins on the second rib, and its left margin passes through the left nipple.

On auscultation over the left apex there is audible a faint systolic and diastolic murmur. Over the second right intercostal space we hear a slight systolic and a long blowing diastolic; over second left intercostal space there is an extremely harsh, loud systolic murmur. This murmur was so rough that on asking a co-examiner of mine to listen to it he was satisfied it was pericardial friction. At the right apex there was a well-marked diastolic and a faint systolic murmur.

Vascular System.—There was nothing peculiar about the pulse. No capillary pulsation was visible in the forehead, it was very doubtful in his nails, none could be seen in his mucous membranes when pressed with a glass slide, and there was no undue pulsation along the brachial or radial arteries.

Abdomen.—Definite bulging of left side, and on deep palpation in the left hypochondriac region a hard edge could be felt, but whether this was the spleen or the kidney which had been operated on was not certain, and palpation was difficult owing to the pain it produced. There was tenderness in the left iliac fossa, but nothing abnormal was palpated.

Back.—Beyond the rigidity of the lower dorsal and lumbar regions, to which reference has already been made, nothing abnormal was detected, till some time after his admission, while making an examination, I was surprised to find some dulness in the lower part of the left thorax, and on auscultation evident pulsation was transmitted to the stethoscope. When inspected

Digitized by Google

in a good light pulsation was undoubtedly present, spreading over an area of about five inches laterally and three inches vertically, situated to the left of the vertebral column and between the levels of the spines of the tenth dorsal and first lumbar vertebræ. The linear cicatrix due to the operation on the kidney is visible in the lower part of the pulsating area. On palpation the pulsation appeared expansile and synchronous with the apex beat.

On percussion, dulness extended from the level of the ninth dorsal spine downwards to the iliac crest, and outwards to a maximum distance of seven inches.

On auscultation normal heart sounds and no murmur were audible over this area.

The lower extremities were normal, and presented no objective motor, sensory or reflex disturbance, except slight exaggeration of the knee-jerk, which was more marked in the following May.

The temperature was normal or subnormal, and remained so till ten days before his death, when it rose and varied between 100° and 101° till his death.

During the last few weeks of his life the swelling became more prominent, and the skin œdematous and red. We had visions of a sudden rupture drenching the bed and floor with blood, and producing sudden death.

The end came otherwise. On Sunday, 27th day of May, while talking to his wife, he said: "Just wait a moment." His colour changed; the resident on duty was at once summoned, but in a few minutes the patient was dead.

Post-mortem Examination.—Left pleura was full of blood, which had escaped from an enormous aneurysm of the descending thoracic and abdominal aorta. The aneurysm had produced erosion of the bodies of the vertebræ, from the level of the seventh dorsal to the second lumbar. Erosion of some of the ribs had also occurred. The abdominal wall was so intimately incorporated with the aneurysmal sac that it was impossible to separate it without a knife. The sac contained great blood clots. There was extensive atheroma of the descending thoracic and abdominal aorta. There was no pericarditis. The cardiac valves were normal. The kidneys were healthy, and no trace of a calculus was detected.

The points of greatest interest in this case are connected with the heart, the kidney, and the tumour.

Digitized by Google

The Heart.—During life there was a very rough and loud murmur audible in the second left intercostal space. Its character suggested to a very competent observer the presence of pericarditis, of which there was not a trace present. The causation of this murmur is, I think, obscure, and I can offer at present no entirely satisfactory explanation of its origin, but it is worth remembering that it probably led to the patient's discharge from the Royal Navy ten years previously as suffering from organic cardiac disease. The diastolic murmur was, I think, produced by relative incompetency of the valves, due to some aortic dilatation.

The Kidneys.—The character of the pain and its distribution not unnaturally suggested renal colic. The patient, however, never passed blood, and, so long as he was under my observation, never albumen. It is but fair to remember that the diagnosis of stone was made before the days of X-rays. No injurious consequences followed on the operation.

The Spine.—On detecting the rigidity of the spine I concluded that he was probably suffering from caries, and that the pain was due to this cause. I frequently looked for the development of a psoas abscess, but never found one. His temperature was practically normal till shortly before death.

The Swelling.—At first there was some doubt as to whether we were dealing with an aneurysm or an abscess with a transmitted pulsation. Though auscultation revealed nothing but normal heart sounds the distensile character of the swelling pointed towards aneurysm. We then endeavoured to answer the question as to the seat. The possibility of the renal artery having been injured at the exploration presented itself, but this was excluded by (1) the size of the swelling; (2) the fact that the symptoms—pain, &c.—had been present for over a year before the operation. On considering all possibilities the abdominal aorta seemed the most probable locality.

Treatment.—In the earlier stages relief was obtained by salicylate of soda and iodide of potassium. When the aneurysm was detected he was given the iodide very freely, and morphia to relieve pain.

Digitized by Google

A CASE OF ADDISON'S DISEASE WITH RAPIDLY FATAL TERMINATION.

By MARTIN J. DEMPSEY, M.D., R.U.I., F.R.C.P.I.;
Physician to the Mater Misericordiæ Hospital.

[Read in the Section of Medicine, April 5, 1907.]

J. K., working electrician, was admitted to the Mater Misericordiæ Hospital on February 10 complaining of severe pain in the abdomen, vomiting and inability to pass water. These symptoms had set in suddenly three days prior to admission, and previously he had always enjoyed good health.

On examination marked tenderness was present corresponding to the region of the appendix. The abdomen somewhat distended and rigid. The pulse 90, very weak; temperature 100°. He complained chiefly of the abdominal pain and of thirst, vomited frequently, and was so weak that he could only turn in bed with assistance. The bowels were constipated, but a small, hard motion followed a soap and water enema. No urine had been passed for thirty-six hours, but the bladder was not distended, as a catheter only drew off a few ounces of somewhat turbid and slightly blood-stained urine.

The combination of symptoms at first suggested some form of intestinal obstruction, but the passage of a fair-sized motion some hours later, and a moderate amelioration of the general symptoms, pointed to the possibility of some other trouble being the cause of his illness.

The marked prostration, weakness of pulse and vomiting, led to a careful examination of the skin, and this confirmed the suspicion, in spite of the sudden and peculiar onset, that the case was really one of Addison's disease.

The changes noted in the skin were as follow:—First, it presented universally a dirty, sallow appearance, such as one occasionally sees in very dark-skinned persons of dirty habits. Secondly, places normally pigmented, such as the axillæ and

Digitized by Google

internatal regions, were almost black. The lips along the lines of contact showed bluish-black streaks, and the inside of the cheeks, hard palate and tongue were similarly coloured in patches.

The subsequent course of the case showed little change. The muscular weakness rather increased. The temperature became and remained subnormal. Vomiting fairly frequent. Thirst persisted, but no desire for food. Urine scanty, but otherwise normal. Heart sounds and pulse both very weak. The mental condition quite clear. The treatment was chiefly symptomatic. Adrenalin solution 1 in 1,000 was given in ten-drop doses three times during the last six days of his illness, which terminated suddenly fourteen days from its onset.

Pathological Report by Professor McWeeney.

"The organs preserved are kidneys embedded in fat, spleen, stomach and lower end of ileum with cæcum. The kidneys and supra-renals are embedded in the same large mass of fat. The kidneys are voluminous, parenchyma large in amount, cortex deeply red (now grey-ground from formalin), vessels are much congested.

"The left supra-renal is the smaller, its length is 3.5 cm., its width about 1 cm. The fat around it is dense and compact from chronic inflammation. The organ itself is reduced to two caseous masses, each about the size of the kernel of a hazel nut. These occupy each end, whilst in the middle between them are two smaller caseous masses the size of a grain of mustard seed. The yellow, cheesy centre of each mass is surrounded by a grey translucent area.

"Microscopically, this area is in a state of small-celled infiltration containing scattered giant cells. No trace of supra-renal tissue is discoverable, but there are areas of large cells of epitheloid character which might be regarded as belonging to the adrenal cortex were it not that they lack the characteristic arrangement. Towards the periphery an increase of fibrous tissue is well marked, and the condition might be called typically fibro-caseous. A section stained for tubercle reveals a few in the caseous matter.

"The right kidney resembles its fellow in being voluminous, and the caseous mass corresponding to the supra-renal is much larger, being 5 cm. long by 3 broad. The surrounding mass is

Digitized by Google

closely incorporated with it, and at the periphery are several scattered caseous masses embedded in fat and about the size of a split pea.

"The other organs kept are the spleen and stomach. The spleen is enlarged, and follicles seem unduly prominent. There are a few larger masses of yellowish matter about the size of a pin head which excite the suspicion of being caseating tubercles.

"With regard to the stomach.—It is normal in size, or perhaps a little smaller than usual, and the condition of the mucous membrane is peculiar. Along the lesser curvature it is mottled, of a slate-grey colour, and is smooth, and it presents several small, irregular superficial ulcers, the biggest of which is 1 cm. long by ½ cm. wide; they destroy the mucous membrane down to the muscular coat; their floor is quite smooth. The rest of the mucous membrane is highly rugose. Corresponding to the greater curvature, on close examination, several similar ulcers are evident.

"With regard to the appendix.—In preserved specimen there are some adhesions of old standing connecting it with surrounding structures, but there is no evidence of recent inflammation."

I have thought the case worthy of recording on account of the extraordinary rapid course it ran once the symptoms declared themselves, though the pathological notes show that the disease must have existed in a latent form for a considerable period. I regret there was no opportunity of examining the great nervous plexuses in connection with the adrenals, as these, unfortunately, were not removed at the autopsy.

Digitized by Google

NOTE ON A CASE OF CEREBRO-SPINAL FEVER OCCURRING IN A CHILD THE SUBJECT OF LYMPHATISM.

By GEORGE PEACOCKE, M.D., F.R.C.P.I.;
Assistant Physician, Adelaide Hospital.

[Read in the Section of Medicine, April 5, 1907.]

On March 11 a girl, aged five years, was brought to the Adelaide Hospital about five o'clock in the afternoon, and the following history was obtained:—She had been in apparently perfect health until two hours previously, when she was suddenly seized with an attack of vomiting and diarrhœa. It was supposed by her mother that these symptoms were due to some dates which she had purchased and eaten on her way home from school. Convulsions setting in, and being unable to rouse the child, her mother brought her over to the hospital.

On admission it was found that her pulse was rather small and weak. There was some slight spasm of the arms and legs. A few purpuric spots were noted on the buttocks, legs and forearms. She resented examination, drawing away her body from the stethoscope when it was applied. I saw her about nine o'clock in the evening, and she was then unconscious, but resisted attempts to examine her. Her temperature was 101.2°. There was little to be made out on physical examination. The head was very slightly retracted as she lay on the pillow, but there was no stiffness of the muscles of the neck. Kernig's sign was absent, the knee-jerks could not be elicited, and, indeed, were it not that cerebro-spinal fever is present as a slight epidemic I would not have even suspected its presence.

The child vomited once after admission, but the vomit was very small in quantity, and consisted of some black coffee she had been given a short time previously. The attacks of convulsions which had occurred at intervals after her admission increased in frequency and severity, and the child died at 2 a.m.,

Digitized by Google

just eleven hours after the appearance of the first symptom. Some time before death the retraction of the head became more pronounced. The same evening we made a *post-mortem* examination. The child was well nourished and evidently well cared for. The inguinal and axillary glands were palpable, but only slightly enlarged. There were several purpuric spots and patches of irregular size and outline scattered over the body, the largest being about the size of a sixpenny piece. These spots, as before mentioned, were most numerous on the buttocks, thighs, legs, and arms, but a few were to be seen on the trunk. On opening the thorax the thymus was seen to be considerably enlarged and bulky. The lungs were healthy. In the abdomen the mesenteric glands were found to be enlarged, and scattered over the peritoneal surface of the intestines were numerous punctiform purpuric spots. The spleen was larger than normal, and on section the Malpighian bodies stood out as small distinct whitish granulations. On opening the intestines both Peyer's patches and the solitary follicles were found to be hypertrophied, the appearance resembling that seen in the early stage of enteric fever. The meninges of the brain appeared normal, except a small area over the cerebellum which appeared cloudy and rather opaque. The brain was to all appearance normal. The cord was not examined.

The examination of the cerebro-spinal fluid was undertaken by Dr. Harvey, and he has kindly furnished me with the following report:—

About a test tube full of fluid was drawn off by lumbar puncture some eight hours after death and divided into two sterilised test tubes. The fluid was of a turbid, almost milky, appearance. One test tube was allowed to stand for twenty-four hours, when its contents were found to have settled into two layers—an upper layer of clear fluid and a white deposit—which microscopic examination proved to be almost entirely cellular. From this deposit smears were made and stained by Leischmann's method.

In such preparations numerous cocci answering to the descriptions of Weichselbaum's meningococcus were present. Occurring in pairs, and occasionally in fours, they exhibited much difference

Digitized by Google

in size, and were often intracellular, though for the most part lying apart from the cells. These latter were for the most part either multinuclear leucocytes or large mononuclear cells. Lymphocytes were few. From the second test tube cultures were made. The organisms which appeared to be in pure culture grew well on hydrocele agar and glycerine agar (less well) forming white opaque viscid colonies. Sub-cultures continued to grow well for about a week, when the organism somewhat suddenly ceased to grow. The cocci stained well by the usual stains, but were completely negative to Gram's method.

The case was thus proved to be one of cerebro-spinal fever occurring in a child who was the subject of lymphatism—the *post-mortem* appearance being very typical of the latter condition.

That death would have ensued from the meningitis in any case is extremely probable, but I think the rapidly fatal issue may be accounted for by the fact that the child was the subject of lymphatism. As yet we know little or nothing about the pathology of this obscure condition. Though a large number of cases have been recorded and the condition is described in some of the text-books we are unable to satisfactorily explain the connection between lymphatism and sudden death. The fact is one that is now beyond all question.

In a very large number of the cases sudden death has followed some trivial circumstance, such as sudden immersion in cold water and the classical case in Germany after an injection with anti-diphtheritic serum, or a simple attack of convulsions—conditions which in healthy children would not be followed by any serious results.

I am inclined to think that it may also be a determining factor in causing a rapidly fatal issue to some of the acute diseases.

The present case is an instance in point, and I have

Digitized by Google

recorded a case of pneumonia in a boy aged six years, the subject of lymphatism, who died twenty-four hours after the onset of symptoms.

For some reason, which is as yet obscure, it would seem that the pathological conditions associated with lymphatism indicate a diminished vital resistance and special liability to sudden cardiac paralysis.

Dr. Harvey explained the microscopic slides.

Dr. Kirkpatrick asked if a diagnosis of the condition of lymphatism had been made before death, and if there was any way by which it could be recognised. The condition had been found in a number of cases in which sudden death had occurred during the administration of anæsthetics for operations, and the diagnosis of lymphatism before death was a matter of practical importance.

Professor White thought it possible that the condition of lymphatism had a good deal to say to the question of infection. Most of the cases that died of cerebro-spinal meningitis had had trouble with adenoids, and a good deal of lymphoid tissue at the back of the nose, and it was possible that they became infected in that way. The organisms existed in some healthy people. At the back of the nose there were many kinds of diplococci, many difficult to distinguish from the organism in cerebro-spinal fever. The only case in which he saw a *post-mortem* in the present outbreak had the condition which Dr. Peacocke called lymphatism.

Dr. Peacocke, in reply, said the idea of lymphatism did not occur to him during the patient's life. The symptoms before death were, unfortunately, practically nil, and the only physical sign likely to be detected would be the presence of a very large thymus showing dulness.

Digitized by Google

CASES OF TUBERCULOSIS TREATED BY PROFESSOR DENY'S TUBERCULIN.

By FRANK J. DUNNE, M.B., R.U.I.;
Physician, South Dublin Union.

[Read in the Section of Medicine, May 17, 1907.]

Dr. Frank J. Dunne exhibited six cases of tuberculosis treated by Professor Deny's tuberculin in the hospitals of South Dublin Union.

Case I.—This case was exhibited to the Academy in May, 1905, and the report of it was published in the Transactions for that year. The patient, aged fourteen years, was discharged from the Royal City of Dublin Hospital early in September, 1904. There was a large, deep ulcer on the anterior and inner surface of the knee-joint, dead bone being felt at the bottom of the wound. The left lung was solid almost from apex to base, with tubular breathing and crepitation, and the right lung was crepitating for a hand's breadth below the clavicle. Tubercle bacilli were found in sputum. It was decided that the disease was too far advanced for operation. She was admitted to the South Dublin Union on September 9, 1904. Her temperature was 101°, pulse 100, respirations 30; weight, 4 stones 8 lbs.; the knee and lungs were practically as when she left the City of Dublin Hospital. She was treated with Deny's tuberculin, and exhibited to the Academy on May 19, 1905. She had neither cough, expectoration, nor night sweats. The right lung had quite cleared, was resonant, and the breath sounds normal. The left lung was slightly dull on percussion, breath sounds were good all over it, except a small area close to the inferior angle of the scapula, where the dulness was more marked, and slight tubular breathing and faint crepitation could still be heard. The knee presented a healthy scar adherent to the bone for a space of one and a half inches. Movement was perfect, except that extreme flexion was slightly limited, and the patient could run and walk without any trouble.

After an interval of two years, during which time the patient

Digitized by Google

has not been in bed for a single day, and for eighteen months has been doing hard work, scrubbing, &c., her knee is still perfectly sound. The left lung is still slightly dull, and has an occasional crackle at the inferior angle of the scapula. She has no cough, expectoration, or night sweats. Her weight in May, 1907, was 7 stones 3 lbs. There are no tubercle bacilli in sputum.

Case II.—*Tubercular Wrist with engagement of left Pulmonary Apex.*—This patient comes of a family riddled with tuberculosis. I am indebted to Dr. Stevenson for her early history and X-ray photographs. She presented herself at Dr. Stcevens' Hospital in April, 1906, suffering from a swelling at the inner side of her wrist, evidently tubercular, and connected with bone. An X-ray photograph showed caries of the pisiform and doubtful disease of the cuneiform. On May 3 Dr. Stevenson cut down and scraped away some carious bone, plugged and applied plaster to immobilise the joint; the wound was dressed for a month, when it healed. Towards the end of June she removed plaster and used her hand, the condition disimproved.

She came under my care on September 21, 1906. The wrist presented a fairly typical tubercular appearance, a fusiform, livid swelling, discharging freely about its centre, in the region of the pisiform bone. The fingers were stiff, and any movement caused pain. The left lung was dull posteriorly to about an inch below the scapular spine, with diminished movement over the whole apex, there was also some faint crepitation. A few tubercle bacilli were found once only. There was very little cough and scanty expectoration, occasional night sweats, and marked wasting. The girl was sixteen years; weight, 6 stones 4 lbs.; pulse 62; temperature 96.8°. The temperature was taken every four hours for four days and never rose above normal.

On September 25 she was injected with .5 cc. of $\frac{1}{1000}$ tuberculin, equivalent to $\frac{5}{1000000}$ T. pure. The temperature rose to 105° F., the arm swelled up, became red and painful, with slight redness and induration at the site of puncture; frontal headache and general feverish symptoms. The discharge from the wrist greatly increased. These symptoms abated in thirty-six hours, though the increased discharge from the wrist lasted three days. On October 1 a second injection of the same strength was given. The temperature rose again to 105° F., but the swelling of the arm and constitutional symptoms were not so marked.

Digitized by Google

On 7th October .4 cc. $\frac{1}{1000}$—a slightly smaller dose—was given without reaction. On 15th October .6 cc. followed by temperature 102.6°, but constitutional disturbance was confined to neighbourhood of the sinus. On October 21 the original dose was repeated, followed, within forty-eight hours, by temperature 101°, with slight feverish symptoms. On October 29 original dose was again given, and no reaction followed. The dose was slightly increased on November 6, 12 and 18, after the latter—1 cc. $\frac{1}{1000}$—the temperature rose to 101°, without other signs. With steadily increasing doses there has since been no reaction of any kind, though she can now stand 2 cc. of pure tuberculin. The wrist has completely healed up, and there is good movement, in fact the hand is as good as ever. There is still some slight dulness on percussion over the left apex, best marked posteriorly, but air enters freely, and I can detect no crepitus. The present weight is 9 stones 2 lbs, showing a gain of 2 stones 10 lbs. in eight months.

Dr. Stevenson kindly took an X-ray photograph of the present condition, which shows almost complete disappearance of the pisiform and loss of adjoining articulation of cuneiform.

Case III.—*Case of Gastric Ulcer (probably tubercular).*—This girl was admitted to the hospital on November 6, 1906, with a doctor's note "gastric ulcer." History, for three months back, of pain localised to right of median line, below ensiform cartilage, size of half-a-crown, constantly in same spot, and very sensitive. The pain increased immediately after food, and was frequently absent when stomach was empty. Usual history of constipation, tea drinking and amenorrhœa. The evening before admission she suddenly felt faint, and vomited a quantity of dark clotted blood.

The patient on admission was somewhat collapsed, but recovered quickly, complained of no pain (said she had not felt it since the hæmorrhage). She was very anæmic, wasted, and muscles toneless. She passed a quantity of chocolate coloured, semi-liquid matter from the bowel in the first twenty-four hours after admission. There was no laryngeal or pulmonary trouble, except diminished movement and diminution of vocal resonance in left supra-scapular region, no tubular breathing or crepitation, no tickling or cough, no stained sputum, no fever, no palpable tumour. The pain recurred the following day, but she had no

Digitized by Google

hæmorrhage while in hospital. She was treated with small quantities of tepid milk and nutrient enemata.

One of my colleagues suggested she might possibly be a case of tubercular ulcer of the stomach, and remembering Van Valzah's statement—"The absence of reaction after the use of Koch's tuberculin is decisive"—I decided to make a diagnostic test.

The temperature of the patient and a control patient (non-tubercular) having been taken every four hours for three days, both were injected on November 21 with .0005 cc. ½ mgr. of T.A.K. without any reaction.

On November 26 a second injection of 1 mgr. was made; about twelve hours later the gastric ulcer patient's temperature rose to 99.2°, with very little other disturbance, the control showed no reaction.

On 4th December 1.3 mgr. was given to both patients. The control showed no sign of reaction, but the gastric patient had a temperature of 104°, with headache, slight local tenderness with some induration and redness. The latter effects passed off in five or six hours, and the temperature reached normal in about 24 hours. I gave a final dose of 5 mgrs. to the control patient without reaction.

The gastric ulcer patient was then put on a regular course of tuberculin, and improved almost from the very commencement. In two months she was on the ordinary tubercular diet of the hospital, and has had no return of the pain or other signs of stomach trouble. She gained 1 stone 4 lbs. in weight in seventeen weeks, and has since had an attack of acute rheumatism, and is now quite well again. No medicine, except an occasional purgative, was given until the rheumatism supervened.

Case IV.—*Lupus Patient.*—Aged twenty years, messenger. This patient was in and out of the general hospital of the Union for six years back suffering from lupus vulgaris. Admitted under my care on November 19, 1905.

History.—Fell on his face on gravel at school when thirteen years of age; "picked the gravel out of his face with his nails, then it turned to blood-poisoning;" treated in Richmond Hospital, where he was scraped nine times under anæsthesia. The following spring the face "broke out" again, the nostrils becoming affected, and disease spreading from nose over malars on both sides. Was under Dr. Moorhead at the Royal City of Dublin

Digitized by Google

Hospital, under light treatment, for a month, with considerable improvement. He had a cough, night sweats and several attacks of hæmoptysis for three or four years back. He came under my care in November, 1905, as a case of pulmonary tuberculosis.

Right Lung.—Consolidation to upper border of third rib anteriorly, to spine of scapula and lower border of fourth rib posteriorly, with faint crepitation.

Left Lung.—Dulness two finger breadths below clavicle and posteriorly over upper four ribs, faint but constant crepitation. Tubercle bacilli numerous, family history of phthisis.

Face.—The nose was covered with crusts, and when these came off erosion of both alæ and nasal septum were well marked; these crusts extended over upper lip, and outwards to outer margin of molar bone on either side. I commenced a course of tuberculin treatment at once, and was able to regularly increase the dose with an occasional repetition owing to local reaction, the face usually being painful the day after injection and sometimes slightly swollen. Early in January, 1906, the crusts were cast off, after which there was very little further reaction. The last crust or scab came away in April, 1906, and his face has remained in its present condition ever since, some scars showing on upper lip and sides of cheeks; the skin is wonderfully pliable and is quite painless.

Lungs.—On right side some creaking may be heard anteriorly below outer third of clavicle, and also over upper third of scapula, with some dulness. On left side harsh breath sounds and coarse crepitation anteriorly about upper three ribs, some dulness posteriorly, but, I believe, no signs of active disease.

He has no cough, expectoration or night sweats, nor has there been any sign of hæmoptysis since treatment commenced.

Case V.—*Tubercular Glands.*—This boy was admitted on April 12, 1906, aged twelve years, weight 4 stones 6 lbs.

History.—A patient in the Adelaide Hospital, where glands were operated on by Mr. Heuston; after four months in hospital he was discharged healed. About six weeks later they broke down again; he returned to the Adelaide, and was operated on by Dr. Gunn, and apparently made a good recovery. Shortly after returning to school they again broke down, and he was sent into the Union Hospital.

On admission the lungs were sluggish at bases. There was

Digitized by Google

a small patch about right inferior angle of scapula, which was airless, but no tubular breathing or crepitation. Tubercle bacilli were not discovered, and he had very little cough or expectoration. The glands of right side of neck were enlarged, two of them being about the size of a walnut, one near angle of jaw and the other towards the middle line; these were suppurating freely. There were also several enlarged glands above and below the clavicle, seven in number, and there was a continuous cord along the right sterno-mastoid. I put him through a course of tuberculin, which was well borne. The suppuration ceased after three months' treatment, and the glands gradually disappeared. At present there is one small gland near lower margin of right tonsil, which is probably not tubercular; the skin is freely movable, and the only thickening to be felt is in the two long operation scars. He is now 5 stones 7 lbs. weight, and in good health.

Case VI.—*Pulmonary Tuberculosis.*—This patient was admitted on December 21, 1905, aged twenty-five years, labourer, weight 7 stones 11 lbs., chest 31½ inches. He complained of cough, with wasting and weakness for a year; expectoration scanty, with numerous bacilli. Right apex dull to third rib, with crepitation; diminished resonance to just below spine of scapula posteriorly, with faint tubular breathing at superior scapular angle. Left apex anteriorly, expiration a little harsh, with an occasional click, and faint crepitation, generally disappearing after coughing.

After four months of tuberculin treatment his cough disappeared, as did also the bacilli. He has steadily gained in weight and strength; for the past four months his weight has varied from 11 stone 5 lbs.; his chest measurement is now 35½ inches. He can do a fair amount of work, and can play a good game of hand-ball without undue loss of breath. There is a well-marked bruit in both subclavians, best marked on left side. Both lungs are fairly clear anteriorly, but posteriorly there is comparative dulness towards the axillary border on the left side, with an occasional click, and, I believe, air does not enter quite freely over the upper lobe of that side.

The Chairman desired to know if Dr. Dunne considered that the local and general reaction, which was so marked in some of the cases, was a necessity, or whether it would not be better to

Digitized by Google

reduce the dose, so as to reduce the initial reaction, and try and spread it over a longer period.

Dr. Stevenson showed X-ray photographs of the case in which the wrist was involved, and said he could not say from the photographs alone whether there was any disease in the bone; clinically there did not seem to be any disease now, but the photograph simply showed that there had been diseased bone removed.

Dr. Moorhead asked if the cases were all in which the treatment had been tried, or were a selection. He had seen two of them when they were very bad, and was much impressed with the improvement. He was also desirous to know if Dr. Dunne had found the opsonic index raised by the injection of Deny's tuberculin.

Dr. Dunne, in reply, said he agreed with the Chairman in regard to the reduction of the dose. In fact he commenced the girl with the wrist with five parts in a million, and did not know what would have happened if he had given her the dose of half a milligram, which is recommended, of Koch's tuberculin. Tuberculin at present had to be used with very great care, and he believed the ordinary trial doses were too strong. The cases were selected from the one-third of the total (150) which he injected. He selected them because they were affected in a way that could be seen; but many of his pulmonary cases—which were difficult to demonstrate—were quite as good. He hoped later to present a tabulated return; pressure of work had prevented his making it, as well as trying the opsonic index.

Digitized by Google

A CASE OF MYELOGENOUS LEUKÆMIA.

By ALFRED R. PARSONS, M.D., Univ. Dub., F.R.C.P.I.;
Physician to Royal City of Dublin Hospital.

[Read in the Section of Medicine, May 17, 1907.]

K. B., aged nineteen years, a servant, was admitted to the Royal City of Dublin Hospital on October 8, 1906, on the recommendation of Dr. Morton, of Birr. On admission she complained only of headache.

Family History.—Her father is fifty years old and well, except for a paralytic stroke he had about two years ago. Her mother, also about fifty, is in good health. They have had eleven children, all of whom, save one, survive. Patient is the sixth in the family.

Previous History.—Patient had measles as a child, and has had some attacks of vomiting. Three years ago some glands were removed from her neck. She was at service till May, 1906. Shortly after leaving, her stomach got out of order, and she consulted a doctor for vomiting. Under treatment she improved, but a few weeks later had another attack. In August vomiting again occurred, and she consulted Dr. Morton, who, on examination, detected a tumour occupying the left side of the abdomen. For five months before her admission to hospital she had had amenorrhœa, and since July she has been greatly troubled with headache and failing sight.

On Inspection.—Her colour appeared good; pupils were widely dilated, and her eyes slightly staring. Numerous carious teeth in the upper jaw, and in the lower jaw the back teeth are also bad. Tongue was rather large, coated, marked by the teeth, and showed slight transverse fissuring. The tonsils are not enlarged. On the left side the glandulæ concatenatæ are enlarged slightly, the largest being the size of a bean; on the right side they are not enlarged. The inframaxillary glands are enlarged on both

Digitized by Google

sides. There is some pulsation in the neck, and a little prominence of thyroid.

Thorax.—Heart presented no abnormal sign. Lungs—On the right side the limits are normal, but on the left there is dulness on the eighth rib in the midaxillary line, and behind a dull note is reached a little higher than on the right side. On auscultation there were no adventitious sounds. The axillary glands are slightly enlarged on both sides. There was no tenderness on percussion over the sternum.

Abdomen.—Slight prominence of two-thirds of left side of abdomen, bounded by a line or shadow running nearly vertically downwards inside the nipple line. On palpation there is some resistance on the right side of the abdomen, while on the left there is a solid tumour occupying the hypochondriac and lumbar regions, and extending lower down than a line joining the anterior superior iliac spines. On percussion on the right side, in the nipple line, dulness extends from the sixth rib to 6½ cms. below the costal margin, and the tumour on the left side gives an absolutely dull note. The inguinal glands are very slightly enlarged, the femoral are not larger than peas.

The Extremities.—The upper are slight; there is not much panniculus adiposus; the nails are normal. The lower are not tender when pressure is made over femur or tibia. No œdema.

The eyes were examined by Mr. Arthur Benson:—

"*Right Eye.*—Optic neuritis with disc margins entirely obliterated; veins enormously distended and tortuous-looking, like a bag of worms; arteries pale, small, and difficult to see; several small hæmorrhages in neighbourhood of disc, and also some white exudation. The extreme periphery of fundus outwards and downwards is very pale. In outer portion is some mottled pigmentation, like what is seen about the yellow spot in albuminuric retinitis. There are a few retinal and subretinal hæmorrhages in lower periphery.

"*Left Eye.*—Similar, but to a much less degree, and there is no pigmentation in periphery."

Blood.—A blood-count, made by Dr. Langford Symes on October 12, gave the following results:—

Hæmoglobin	...	...	50 per cent.
Red blood cells	...	...	3,760,000 per c.mm.
White blood cells	...	...	937,600

Digitized by Google

Differential count—			
Myelocytes—Neutrophile	69		
„ Eosinophile	2		
	—	71	per cent.
Neutrophile (polymorphonuclear)		19	„
Lymphocytes		8	„
Large hyaline cells		1	

On this occasion one nucleated red blood cell was observed, but no mast cells or polymorphonuclear eosinophiles were seen.

The urine contained during her first week in hospital no albumen and no sugar. Several estimations of the amount of uric acid eliminated in twenty-four hours showed that it varied between 1 gram and 1.6 gram. The average amount of urea passed in the same period was about 25 grams.

Treatment.—Early in November the application of the X-rays was commenced by Mr. Chas. Benson, F.R.C.S. She had on an average three sittings per week. On November 26 she completed three weeks of treatment, and during that period she had had nine sittings. An examination disclosed a slight but general diminution in the size of the spleen, and a blood count indicated the presence of 700,000 white blood corpuscles per cubic mm. The X-ray treatment was continued, and the patient was ordered small doses of Fowler's solution. During the next month a remarkable diminution took place in the number of the white cells. On December 28 the white blood cells reached only 88,000. We have, therefore, a drop of over 600,000 in the space of a month. The spleen also definitely diminished, so that its edge was 9 cm. from the middle line instead of 5 cm. The liver dulness was much smaller. The improvement was also manifested in her eyes, which were so altered that Mr. Benson would not have recognised them. The edge of the disc was sharp. The disc itself was pale and atrophic; the veins were normal in size and not tortuous.

Subsequent History.—The subsidence of the signs and symptoms which commenced in November was maintained. The spleen continued to shrink, and became so small that when the patient was exhibited at the Academy on May 17 the majority of the Fellows who examined her were not able to feel it. The liver subsided to an almost normal size. The sight improved. She

Digitized by Google

gained two stones in weight. Menstruation returned, and a blood count made on April 19 showed :—

Hæmoglobin			90 per cent.
Red blood cells			4,857,000
White blood cells			10,000
Differential count—			
Polymorphonuclears :			
Neutrophile ...	78		
Eosinophile ...	1		
	—	79	
Myelocytes :			
Neutrophile ...	4		
Eosinophile ...	0		
	—	4	
Mononuclears :			
Large	3		
Small	13		
	—	16	
Mast Cells		1	

Arsenic was stopped about the middle of February, and the last X-ray sitting was given on March 9. She had in all thirty-nine applications.

N.B.—Since the above examination of the blood was made on April 17 there has been a slight tendency for the white cells to increase, but her general health is excellent.

Dr. Craig recalled a case in which the spleen, under arsenic treatment, used to disappear quite beneath the costal arch, so much so that he thought the man was cured. He returned, however, a couple of times to hospital, although taking fairly large quantities of arsenic. In the end he died of general tuberculosis, and at the time of death the spleen was fairly large, though not so large as on previous occasions. Dr. Parsons had shown them a remarkable cure, but with his own case in view he would hesitate before saying that the condition would not recur.

Dr. Kirkpatrick asked Dr. Parsons if he had formulated any opinion as to the relative merits of the treatment by arsenic and by X-rays, or by both in combination. Dr. Craig's case showed

Digitized by Google

that it was possible to cause the disappearance of the symptoms by drugs; but it was important to find whether not only a disappearance of the symptoms, but a cure, could be effected by the X-rays.

Dr. Drury cited the case of a woman who had a much larger spleen than Dr. Parsons' case. Every drug treatment was tried without result. Then they tried the X-ray treatment alone, and the spleen was enormously reduced. Ultimately she died of syncope.

Dr. Parsons, in reply, said he had purposely avoided using the word *cured*. So far as he knew there was no case of *cure* on record. The improvement in the case had continued even after the arsenic was stopped. In another case, a lady, fifty-five years of age, who had been on arsenic for about five months, the treatment had produced diarrhœa and vomiting. She then came to him, and, as the arsenic had made no improvement, he put her under X-rays. After twenty sittings the spleen commenced to subside, and there was also a marked diminution in the white corpuscles. The case, therefore, proved that the X-rays alone could bring about a remarkable improvement.

Digitized by Google

NOTES OF A CASE OF CEREBELLO-PONTINE CYST.

By GEORGE PEACOCKE, M.D., F.R.C.P.I.;
Assistant Physician Adelaide Hospital, Dublin.

[Read in the Section of Medicine, May 17, 1907.]

J. R., aged thirty years, a native of County Wicklow, was admitted to the Adelaide Hospital on March 4 under my care. He had been a coachman, but for some time past had assisted his father at farming work. He was in his usual good health up to five months ago, when he noticed that when walking along the road it seemed to him that instead of being a level surface it appeared to be in hills and hollows. This, he says, was the first symptom of any kind that he noticed. Shortly afterwards he began to suffer from headaches, the pain being felt in the back of his head and behind his eyes. The pain was always worse in the morning on waking up, was not continuous throughout the day, and did not disturb his sleep. His appetite was good, bowels fairly regular, and he had no vomiting. His sight had been getting bad for about three months, and he had also noticed that he was deaf in the left ear. His gait had become somewhat unsteady, which he attributed to giddiness. He had never met with any injury to his head, was a temperate man, and had not contracted syphilis.

On examination he appeared to be a strong, well-developed, muscular man. The thoracic and abdominal organs were healthy. His temperature and pulse were normal. His gait was rather unsteady, but not very markedly so, except when attempting to turn. Knee-jerks were normal; ankle clonus was not present; no loss of power or sensation in the legs or arms. On examining his face it was at once apparent that he had some degree of facial palsy. All the muscles supplied by the seventh nerve on the left side were affected, but the paralysis was not complete. He had

Digitized by Google

Dr. Peacocke—Cerebello-pontine Cyst.

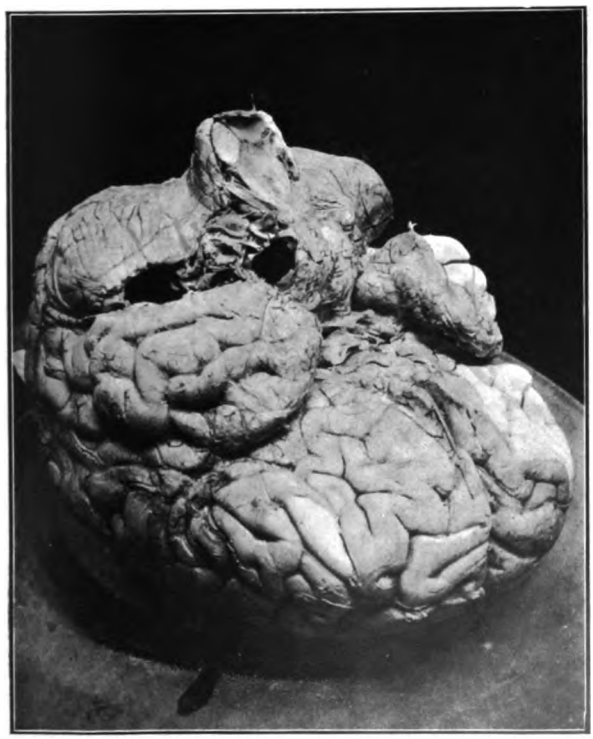


Fig. 1.—Shows Tongue like Processes of Cerebellum.

Digitized by Google

Digitized by Google

DR. PEACOCKE—Cerebello-pontine Cyst.

FIG. 2.—Section through Cerebellum.

Digitized by Google

Digitized by Google

no paralysis of any of the muscles of the eyeballs. Conjugate deviation of the eyes to the left caused a few jerky nystagmoid movements, but true nystagmus was not present. Sensation on the left side of the face was almost entirely lost. There did not appear to be any loss of taste.

Mr. Swanzy kindly examined his eyes and gave me the following report:—

"O. Sin. $\frac{6}{12}$ (partly); O. Dex. $\frac{6}{60}$. In each eye optic neuritis, with small apoplexies and white patch in neighbourhood of optic disc."

As he complained of deafness of the left ear I asked Mr. Law to examine him, and he informed me that in the left ear Rinné's test was negative, but in the right ear positive. Weber's test was uncertain. Drums were normal, and there was no evidence of any suppurative condition in ear, sinuses or meninges.

The diagnosis made was a tumour on the left side of the brain, in the neighbourhood of the pons and cerebellum, involving the fifth, seventh and eighth nerves. The only classical symptom that was wanting to complete the picture was vomiting, and this was conspicuous by its absence throughout the whole course of the illness.

His condition remained very much the same for six weeks. The headache, which during all the time he was under observation was invariably referred to the frontal region and behind the eyes, became perhaps a little more severe, but seldom interfered with his sleep, and was not constant all day. His appetite continued good, and his only complaint was that he did not feel himself getting any better. He was able to be out every fine day in the grounds of the hospital.

On the morning of April 15, when I was examining him as he sat up in bed, he became pale and weak, but restoratives soon brought him round again, and he seemed none the worse afterwards.

At 6 a.m. on April 21 he had a similar attack, which soon passed off, but at 9 a.m. the same morning he died quite suddenly. The only treatment he received was 10 gr. doses of iodide of potash thrice daily, but this had been discontinued for ten days before his death. Three hours after death I injected about six ounces

Digitized by Google

of 40 per cent. formalin saturated with common salt through the inner canthus of each eye, and the brain was removed thirty hours later.

On removal of the brain it was found that the lesion consisted of a cystic growth involving the pons and cerebellum on the left side. There was a small amount of pale, straw-coloured fluid in this, but it unfortunately escaped in the removal of the brain, as the wall of the cyst was adherent to the bone, and became torn, and so prevented any examination of the fluid being made.

On making a horizontal section through the pons and cerebellum it was seen that the cyst was not a single cavity. A thin layer of membrane separated the larger cerebellar cyst from that involving the pons. Between these two there was a triangular bridge of tissue, somewhat cheesy in appearance, and in it was a small, round cyst containing some blood.

In the photographs, kindly taken for me by Professor Scott, you will observe the two tongue-like processes of cerebellum proceeding downwards over the medulla. I do not remember ever seeing a similar condition.

Dr. Harvey kindly made sections from the small triangular area I have mentioned, and he has furnished me with the following report:—

"Section of a piece of the brain tissue adjoining the cysts shows two different tissues.

"(1.) Composed of spindle-shaped elements, very cellular and resembling in all respects a spindle-celled sarcoma.

"(2.) A tissue composed of smaller cells (neuroglial)."

The absence of vomiting and of all symptoms referable to pressure on the pons, except those resulting from involvement of the fifth, seventh, and eighth nerves, seem points of interest in the case.

Simple cysts of the cerebellum are not common. Most of the so-called cerebellar cysts are merely cystic degeneration of tumours, and, as Williamson points out, a cerebellar cyst can only be classed as simple or serous

Digitized by Google

when minute examination shows no trace of hydatid disease, cysticercus, hæmorrhage, or tumour.

The histological examination suggests that this was originally a tumour composed of glio-sarcomatous tissue which had undergone cystic degeneration.

Dr. Parsons said that hardly any cases were more trying than brain cases, and he desired to know if the question of operative interference had been raised. If the surgeon had been able to strike the cyst, the eyesight might have been saved.

Dr. Craig instanced a case in which loss of hearing gave a fair opportunity of localising the tumour, but the operation failed, and the girl died.

Dr. Moorhead said the question raised by Dr. Parsons was very important. In cases where localising symptoms made the position certain, he thought that early operation should be recommended.

Dr. Peacocke, in reply, said that the question of operation did suggest itself to him, but no one else who saw the case suggested it.

Digitized by Google

LYMPHO-SARCOMA OF THE LUNG.

By JAMES CRAIG, M.D., F.R.C.P.I.;
Physician to the Meath Hospital and County Dublin Infirmary.

[Read in Section of Medicine, May 17, 1907.]

The patient who is the subject of this note was a plumber, aged forty-six years, who came under my care in the Meath Hospital on March 12 of the present year.

Dr. Thomas Neill asked me to admit him to hospital, as he thought he was suffering from aortic disease. Dr. Neill had seen him in October, 1906, when he found the man in bed complaining of dyspnœa, which he attributed to a severe cold following on a wetting received several weeks previously. Dr. Neill then obtained his admission to the Adelaide Hospital, believing the case to be one of bronchial asthma. He was there treated for bronchitis for six weeks, when he returned to work, feeling much better, but four weeks later he noticed his abdomen becoming larger, and his breathing occasioned him much distress. Dr. Neill then saw him, and recognising the presence of an aortic systolic murmur he naturally concluded that the dyspnœa was of cardiac origin.

On examination I found temperature 96.2° F., pulse 100, strong but intermittent; respirations 30; orthopnœa; occasional pain over cardiac region complained of; legs swollen and some ascites; cough, which was worse at night; some frothy expectoration; no dysphagia. Veins in the neck were somewhat distended; the voice was hoarse.

Examination of Heart.—Feeble impulse, no thrill, weak first sound at apex, systolic murmur in aortic area carried up into carotids.

Examination of Lungs.—Left lung—Little expansion, loss of tactile fremitus, dulness on percussion, both back and front. On auscultation breath sounds were defective, sonorous rhonchi were present, and heart sounds were conducted over the front and back,

Digitized by Google

particularly in the upper half of the left chest. Right lung—Normal.

Liver slightly enlarged.

Urine, acid, sp. gr. 1026, contains albumen—36 ozs. passed in 24 hours.

The symptoms pointed to pressure from a tumour; aneurysm was suggested, mediastinal tumour was also discussed, but the condition of the left lung was obviously what gave rise to the symptoms. The physical signs suggested a pleural effusion completely filling the left pleural cavity, but, after careful consideration, in the end I admitted that I was quite unable to say what the condition of the lung was.

The patient got worse. He experienced great pain over the cardiac region, which was relieved by hot poultices. Dry cupping over the left lung gave him some relief in his breathing. He could get no sleep, even with the aid of trional, veronal and such like drugs. His abdomen and legs became more swollen, and his face got suffused. His cough was troublesome, the expectoration was slight, frothy, but never blood-stained.

On March 30 his condition was so distressing that his abdomen was tapped and 400 ozs. of milky-coloured fluid were withdrawn. The fluid contained fat globules—that is to say, the patient had chylous ascites. It was then suggested that a tumour must be pressing upon the thoracic duct to produce this condition, and that pressure on the left recurrent laryngeal nerve caused the hoarseness. He obtained considerable relief from the tapping, but he complained bitterly of the severe pain over the region of the heart, and sinking rapidly he died on April 4. The temperature remained subnormal during the three weeks he was under treatment, except that on the day before he died it rose to 99° F.

I made a *post-mortem* examination on the following morning. There was an abundance of subcutaneous fat all over the body. On opening the abdomen there was a considerable quantity of chylous fluid free in its cavity. The liver was enlarged and of nutmeg appearance. The kidneys were congested, but there was no evidence of cirrhosis. The spleen was slightly enlarged and very friable. There was no appearance of any new growth in the abdomen. On opening the chest the pericardium was found much distended with sanguineous fluid; on the visceral and parietal layers of the pericardium numerous subserous hæmorrhages were observed;

Digitized by Google

several new growths were seen invading the pulmonary veins, the pulmonary artery, and the aorta at the base of the heart, and projecting for nearly an inch into the upper part of the pericardium. On the surface of these growths a hæmorrhage was observed; rupture of the capillaries in connection with these hæmorrhages was evidently the source of the sanguineous fluid in the pericardium. The heart itself showed no valvular lesion. The right lung and pleura were healthy looking. The left pleura was firmly adherent over its entire extent. The left lung did not collapse when the chest was opened. On cutting into its substance in various directions a large irregular spherical mass, approximately four inches in diameter, was seen to occupy the root of the lung. It surrounded the trachea and diverging bronchi, but lay mainly in front of them. The œsophagus and aorta were free, but pressed upon in front by the new growth. The circumference of the tumour was irregular, and between it and the surface of the lung was a small margin in which lung tissue could be seen, but in which a number of secondary growths appeared, varying in size from a pea to a walnut. The growth was white, opaque, firm, and homogeneous. Scattered through its substance could be seen a number of black pigmented areas, about one inch by half an inch, which were apparently sections of enlarged lymphatic glands. The naked eye appearance suggests primary involvement of the bronchial lymphatic glands, and from this the tumour appears to have extended until it replaced nearly the whole of the alveolar tissue of the left lung. The adherent layers of pleura were about one-eighth of an inch in thickness, but there does not appear to be any connection between this very chronic condition and the new growth. The microscopic sections showed the growth to be a lympho-sarcoma.

I have brought before the Academy this brief record of the case, first, because of its rarity, and secondly because of the difficulties that beset one in attempting to arrive at a correct diagnosis.

I am well acquainted with Stokes's wonderful records of cases of malignant disease of the lungs, but he has no record of a case at all alike to this one. Mediastinal tumours of this nature are not uncommon, and whether

Digitized by Google

this case should be considered as one originating in the middle mediastinum (lymphatic glands) is a matter of doubt.

With regard to the diagnosis I never got further than suggesting that the pressure signs were all in favour of a tumour on the left side high up in the thorax.

The systolic aortic murmur I might attribute to pressure, as there was no evidence of hypertrophy of the left ventricle to suggest stenosis of the orifice nor an atheromatous condition of the arteries which might account for it.

There was no enlargement of the lymphatic glands in the neck, nor any local bulging in any area of the chest, and, as already mentioned, there was no red currant jelly or other form of sanguineous expectoration.

Digitized by Google

ABSTRACTS.

SECTION OF MEDICINE.

President—J. M. Redmond, M.D., P.R.C.P.I.

Sectional Secretary—F. C. Purser, M.D., F.R.C.P.I.

Friday, November 9, 1906.

The President (Dr. J. M. Redmond) in the Chair.

Dr. Travers Smith read a paper on "So-called Functional Cardiac Murmurs" (see page 1, *ante*).

Dr. Parsons read a paper on "Splenomegaly with Eosinophilia" (see page 15, *ante*).

Friday, December 7, 1906.

The President in the Chair.

Dr. George A. Gibson (Edinburgh) read a paper on "Our Debt to Ireland in the Study of the Circulation" (see page 23, *ante*).

Friday, January 18, 1907.

The President in the Chair.

Dr. James Little, Sir C. B. Ball, Dr. James A. Lindsay, and Mr. A. B. Mitchell, read papers on "The Treatment of Gastric Ulcer" (see page 70, *ante*).

Digitized by Google

Friday, March 1, 1907.

THE PRESIDENT in the Chair.

THE PRESIDENT OF THE ACADEMY (DR. J. MAGEE FINNY) read a paper on "Maniacal Chorea" (see page 94, *ante*).

DR. MOORHEAD read an account of a case of "Movable Spleen" (see page 108, *ante*).

Friday, April 5, 1907.

THE PRESIDENT in the Chair.

DR. MARTIN DEMPSEY exhibited a case showing "Unusual Nervous Symptoms," which he regarded as the result of multiple Spinal Sclerosis.

Aneurysm of the Thoracic Aorta.

DR. WINTER showed a man suffering from the above. The man suffered from loss of voice, owing to paralysis of his right vocal cord. There were no other physical signs, other than a limited area of dulness on percussion and some difficulty in deglutition. On examination with X-rays a definite pulsating tumour could be seen to the left of the sternum.

DR. PARSONS read a paper on "Pseudo-renal Colic" (see page 117, *ante*).

DR. DEMPSEY read an account of a case of "Addison's Disease with Rapidly Fatal Termination" (see page 123, *ante*).

DR. GEORGE PEACOCKE read a paper on "Cerebro-spinal Fever occurring in a Child the Subject of Lymphatism" (see page 126, *ante*).

Friday, May 17, 1907.

DR. KIRKPATRICK in the Chair.

An Obscure Case of Nervous Disease.

DR. WINTER exhibited an obscure case of nervous disease. The symptoms were, he said, vague. The main thing was exaggerated reflexes, and the patient had a sensation, sometimes

Digitized by Google

of pain and sometimes of numbness and tingling, in his left arm and leg when he got out of bed. Sometimes he got a spasm in his calf and the three outer fingers of his left hand. His superficial reflexes were normal.

DR. KIRKPATRICK said he would hesitate to diagnose the case. There were a number of points which rendered it almost certain that it was a case of disseminated sclerosis; but he was not familiar with the marked spasm as a symptom.

DR. FRANK J. DUNNE exhibited six cases of tuberculosis treated by Professor Deny's tuberculin in the South Dublin Union Hospital (see page 130, *ante*).

DR. A. R. PARSONS read a paper on "A Case of Splenomedullary Leukæmia" (see page 137, *ante*).

DR. PEACOCKE read "Notes on a Case of Cerebellar-pontine Cyst" (see page 142, *ante*).

DR. CRAIG read the clinical notes on a case of "Lympho-Sarcoma of the Left Lung" (see page 146, *ante*).

Digitized by Google

SECTION OF SURGERY.

SPHINCTERIC CONTROL OF MALE BLADDER, AND ITS RELATION TO PROSTATECTOMY.

By C. ARTHUR BALL, M.D. Univ. Dub., F.R.C.S.;
Surgeon to Sir Patrick Dun's Hospital.

[Read in the Section of Surgery, November 30, 1906.]

The exact muscular arrangement by which urine is retained in the bladder is a subject which formerly received much attention from anatomists and physiologists, and which now, owing to its increasing surgical importance, is attracting the attention of many surgeons.

From an anatomical point of view, the following muscles have to be considered:—

1. The internal sphincter vesicæ;
2. The external sphincter vesicæ;
3. The compressor urethræ muscle.

1. The internal sphincter vesicæ is composed of an ill-defined ring of involuntary muscular and elastic fibres surrounding the orifice of the bladder. According to Starling,[1] "careful dissection fails to show any thickening of muscle round the commencement of the urethra sufficient to constitute a sphincter. But the first part of the urethra is surrounded by a muscular coat, consisting of an inner longitudinal layer of fibres, and an outer thicker layer continuous with the inner and middle layers of the bladder." According to Reyfisch,[2] this internal

Digitized by Google

sphincter may be inhibited or set in contraction by voluntary impulses.

2. The external sphincter of Henle is composed of a few transverse fibres on the ventral surface of the prostate gland. This in man is the commencement of a sheet of striped muscle which surrounds the urethra to within an inch or so of the external meatus.

3. The compressor urethræ muscle. This is the name applied to a powerful muscular apparatus, of which the inner surface consists of longitudinal and circular unstriped muscles; the outer layer of striped muscle fibres, which are continuous above with the external sphincter of Henle, and surround the membranous urethra circularly and obliquely. This striped muscle is usually called the compressor urethræ muscle.

These muscles are, no doubt, from their position, all concerned in retaining urine in the bladder. Which is the important one to avoid injuring in the surgery of this region is a question which has provoked a good deal of controversy, different observers getting different results according to the methods employed. Now that a large number of prostatectomies have been performed, an opportunity has been afforded in man of deciding the question. The result has been that it has generally been accepted that the important muscle is the compressor urethræ muscle, and that, if incontinence is to be certainly avoided, the membranous urethra should be carefully left uninjured. This question is fully considered by E. Wood Raggles, in the *Annals of Surgery* for April, 1905, in which the following quotation from a paper of Freyer's is given: "It would thus appear that, after complete enucleation of the prostate, the prostatic urethra, deprived of its normal support, widens out in funnel fashion, and practically becomes part of the bladder cavity It further

Digitized by Google

demonstrates that the true sphincter of the urethra (or bladder) is situated in the membranous portion of the urethra."

I myself, and I suppose the majority of surgeons interested in this region, felt quite satisfied that the important sphincter muscle was that surrounding the membranous urethra until the following surprising result was obtained in one of my own prostatectomy cases.

A perineal prostatectomy was done on a man, aged seventy-five, on March 8, 1905. Young's conservative operation was attempted. An incision was made in the membranous urethra, and the prostatic tractor inserted into the bladder. The prostate, however, did not enucleate nicely, and had to be removed in pieces, the prostatic urethra being largely destroyed. The mucous membrane of the bladder, however, was not injured. A double tube was inserted into the bladder, and continuous irrigation kept up for five days. The tubes were then removed, and I expected the patient to be constantly wet until the fistula closed. To my surprise this did not occur; the patient asked for the bed-pan the same evening, and passed ten ounces of urine through the fistula. This control continued until the fistula healed, and the urine came per urethram. In this case, the membranous urethra was open in its upper part; the prostatic urethra was largely destroyed; this control, which was almost perfect, must, therefore, have taken place by means of the internal sphincter. This observation, although only an isolated one, still made me seriously consider the question anew, and I resolved to try to find out, experimentally on animals, whether the membranous urethra was so important after all.

In the dog, the prostate is very like that of man, in fact a mesial section through the urethra, prostate and

Digitized by Google

bladder of a dog is extraordinarily like that of a child. The only apparent difference, microscopically, being the increased development of the glandular structure in the adult dog. In the commoner forms of monkey, the prostate is a small bilateral structure lying mostly on the posterior aspect of the urethra and not distributed so evenly all round the urethra as in the dog and man. I have not yet had an opportunity of dissecting this region in the anthropoid apes.

Dogs were used for the observations, and only the immediate results were considered. It is obvious that here, as in other parts of the body, the muscles left have considerable powers of adapting their function to take the place of those removed. This is one of the reasons that the ultimate perfect control, after prostatectomy in man, does not necessarily mean that the important sphincter muscle has been left uninjured.

In the dog, the prostate can be readily exposed below the bladder by a vertical incision through the lower part of the abdominal wall at the side of the penis. The insertion of the rectus muscle of that side being detached as far out as is necessary to admit the finger to the pelvis. The urethra below the prostate can then be separated from the rectum and the prostate drawn up into the wound. The ease with which this can be done appears to depend on the age of the dog; in some the prostate is on a level with, or even slightly above, the pubis, in others it lies deep in the pelvis. From a considerable number I have examined, it would appear that the older the dog the higher is the position of the prostate with regard to the pelvis. It appears to me also that, if senile hypertrophy takes place, great enlargement might occur without producing any symptoms, because of the freedom of the prostate to expand without compressing the urethra, or en-

Digitized by Google

croaching on the bladder. The question of hypertrophy of the prostate in the lower animals can only be incidentally referred to here. On a future occasion I hope to deal with it more fully.

Experiment 1.—The prostate was exposed by an incision as described above. The urethra was divided transversely a little below the apex of the prostate, with the object of stitching it to the anterior abdominal wall. To aid in this, and to render it functionless, this piece of urethra was slit up into the prostatic structure, and stitched to the edges of the wound, which was then closed. The following morning the dog made efforts at micturition, but was unable to pass water. A catheter was passed through the prostate and the urine drawn off. After this the dog passed water apparently quite normally, so far as control was concerned, the only difference noticeable was a slight difficulty in cutting off the flow. So that, when only passing a small quantity of urine at a time, after the custom of the dog, a slight dribble took place for a few seconds. This, I think, could to a large extent be accounted for by the fact that the prostate had retracted into the depths of the wound.

Experiment 2.—In order to confirm the first experiment, the prostate and membranous urethra were similarly exposed in another dog. The membranous urethra was quite isolated. An incision was made across the posterior surface of the prostate and into the prostatic tissue, so as to make sure that all the nerves and vessels passing down to the membranous urethra were divided. The muscle fibres surrounding the urethra were then divided, leaving practically only the mucous membrane intact; in fact it appeared quite likely that the urethra might necrose.

The result of this experiment completely confirmed the first, for the dog had perfect control, and micturition was

Digitized by Google

perfectly normal. It now remained to find out whether this control lay in the prostate or above it.

Experiment 3.—In a third dog, the membranous urethra was cut across as before, and the prostate removed in slices until the entire structure was taken away, with the exception of a small piece on the posterior aspect, which was left to give a fastening to a rubber drainage tube put in to convey the urine to the surface. I was under the impression that, anteriorly, I had injured the bladder sphincter, which was relaxed and open. This relaxation possibly was accounted for by the depth of the narcosis, as by mistake a larger dose of morphia had been given hypodermically, previous to the administration of the anæsthetic, than had been intended.

I had already ascertained that the entire prostate could be sliced away with a moderately distended bladder without the urine escaping. This in itself did not seem conclusive, as the manipulation and stimulus of cutting possibly caused a spasm of the internal sphincter. The result of Experiment 3 was almost exactly the same as that of Experiment 1. There was no incontinence. When the dog was allowed to run about with the bladder distended by the urine of six or eight hours there was apparently some difficulty in cutting off the flow, more dribbling took place between the acts of micturition than in the first experiment. This difficulty of stopping only lasted a few seconds, and seemed to occur when the dog passed water with a full bladder; afterwards, when taken our for a run, micturition seemed perfectly normal.

The dog was chloroformed ten days after the operation, and the bladder, *post-mortem*, contained about two ounces of urine.

The above experiments demonstrate clearly that, in the

Digitized by Google

dog, the important muscle, which retains the urine in the bladder, is the internal sphincter vesicæ.

Von Zeissel[3] has shown, in curarised animals, that the internal sphincter hinders water injected into the urethra from flowing into the bladder, and that stimulation of the nervi erigentes relaxes this sphincter and allows the flow to take place.

Finger,[4] referring to these experiments of von Zeissel, says that "the anatomical conditions in beast and man are quite different, in beasts the mechanism of the closing of the bladder is according to its anatomical arrangements purely involuntary, in man, on the other hand, it is capable of being decidedly influenced through the will." This statement does not appear to be correct for all animals. I have already pointed out the anatomical similarity between dog and man. In the dog at least, among the animals, micturition is not, "purely involuntary." Many dogs can voluntarily retain their urine for twelve or more hours. This voluntary control is, of course, developed in house dogs, but I have also seen it in sporting dogs that have had no previous training in this respect. Of course that which is true in the case of the dog must also, if possible, be shown to be so in man.

Leedham-Green,[5] by filling the living human bladder with an emulsion of bismuth, and then taking a radiograph of the pelvis, demonstrates that the full bladder is spherical, that is, that the internal vesical sphincter remains closed, and not, as held by Finger, pear-shaped owing to the pressure of the distending fluid causing the internal vesical sphincter to relax, and allowing the prostatic urethra to distend down to the compressor urethræ muscle. The views of Finger, which are so well known, and so generally accepted, because they explain many phenomena which occur in pathological

Digitized by Google

conditions of the urethra and bladder, I need not deal with here, as they have recently been so fully gone into by Leedham-Green[6] in his recent paper in the *British Medical Journal.*

Oppenheim and Löw,[7] at the clinic of Professor Finger, have carried out similar experiments to Leedham-Green's on the living bladders in apes, having ascertained that they were analogous to those in man. They obtain results supporting Finger's theories.

This ingenious method of investigating the shape of the living bladder is open to the criticism that a certain amount of irritation is produced by the injection of the opaque fluid, whether a catheter is used or not. This may cause a slight spasm of the sphincter muscle, and obscure the result, particularly in the case of one of Leedham-Green's radiographs, which shows a metal bougie *in situ* with the bladder distended.

Again, in the case of the apes, the fact that a certain amount of anæsthesia was necessary possibly accounts for the fact that the internal sphincter is relaxed in the distended bladders.

Conclusions.—In order to prove absolutely that in man the internal sphincter vesicæ is the important muscle, it will be necessary to obtain observations on all cases of surgical interference with this region, particularly in young patients that have not reached the complication of an enlarged prostate, for, in such cases, the action of the internal sphincter must be considerably interfered with, particularly in those in which there is much intravesical enlargement. This interference possibly accounts for the symptom, frequently seen in cases that have not reached complete obstruction to micturition—namely, inability to retain the urine if a sudden desire to pass water takes place. When this condition arises, very likely the

Digitized by Google

compressor urethræ muscle develops increased activity to counteract the symptom.

After prostatectomy, the control of micturition is usually somewhat abnormal at first, but quickly becomes apparently quite normal. This is probably owing to the compensatory powers of the compressor urethræ muscle. Whether the internal sphincter acts after supra-pubic prostatectomy is a point which no doubt will soon be ascertained by autopsies on patients some years after the operation. But it seems quite incorrect to argue, from operations on patients with enlarged prostates, that the chief sphincter of the bladder normally lies in the membranous urethra.

The foregoing experiments were carried out in the School of Physiology in Trinity College, Dublin. I have to express my best thanks to Professor Thompson, King's Professor of the Institutes of Medicine, for placing the resources of the department at my disposal, and for many courtesies extended.

REFERENCES.

[1] Text-book of Physiology, edited by E. A. Schäfer.
[2] Virchow's Archiv, 1897. Bd. CL. S. 111.
[3] Archiv f. d. ges. Physiologie, 1893. Bd. 53.
[4] Die Blennorrhoe Sexualorgane, 1905.
[5] Centralblatt für die Krankheiten der Harn- und Sexualorgane. Bd. XVII., Heft 5. Ausgegeben am 31. Mai 1906.
[6] Brit. Med. Journal. August 11, 1906.
[7] Centralblatt für die Krankheiten der Harn- und Sexualorgane. Bd. XVII., Heft 2. Ausgegeben am 22. February 1906.

Mr. T. E. Gordon considered the communication one of the most important which had been laid before the Academy for some time. The experiments appeared to be conclusive as far as they went and as far as it was possible to draw inferences with regard to human physiology from the anatomy and physiology of the dog.

Digitized by Google

MR. JAMESON JOHNSTON said it had been difficult for him to account for the complete control after suprapubic prostatectomy. He could not conceive that the internal sphincter could exist after the amount of manipulation which it had to undergo, and he thought the amount of damage done to the bladder wall would prevent the internal sphincter from acting again.

MR. GUNN said that in cases where the prostate had been removed by the suprapubic method, and where he thought the internal sphincter was either destroyed or taken away, good control had been got. He believed that the compressor urethræ muscle was the most important to leave behind when interfering with the bladder.

Digitized by Google

LIMITS OF ABDOMINAL OPERATIONS.

By T. E. GORDON, M.D. Univ. Dub., F.R.C.S.;
Surgeon to the Adelaide Hospital.

[Read in the Section of Surgery, November 30, 1906.]

My aim in this communication is to bring before you some debatable matter in abdominal surgery. During the past ten years certain major operations on the viscera of the abdomen have become almost safe and easy in their performance, and as a natural result there has been a strong tendency towards increase in their sphere of use. In some instances this increase is justified, in others I think it is not. In any case there is much room for difference of opinion, and seeing that I shall only deal with those operations of which we have all now ample experience I think I may fairly hope that members will fully state their views.

Concerning Movable Kidney.—There are certain indications which the large majority amongst us recognise for fixing a movable kidney. To avoid unnecessary details I may say that this operation may be performed in all those cases in which the symptoms are obviously and directly referable to the kidney itself. But apart from these there are a host of symptoms which are often associated with movable kidney. Such symptoms are:—1. Vomiting and other signs of gastric derangement; 2. Constipation; 3. Biliary colic; 4. Vague general symptoms—*e.g.*, dragging sensations, incapacity for work, loss of flesh, and neurasthenia.

These associated symptoms have been explained in

Digitized by Google

various ways. Pressure of the displaced kidney on the duodenum has been thought an explanation of the biliary colic and of the gastric disturbance. This is a foolish theory, and not worth serious discussion. Of more interest is the suggestion that these various symptoms may have a *reflex nervous origin*.. We know that vomiting is common as a reflex effect of a renal calculus, but in that case the vomiting usually accompanies an attack of pain in the renal region, and very seldom occurs alone. Still I think experience has proved that vomiting may sometimes be regarded as a reflex effect of movable kidney, for sometimes it appears to have been cured by a nephropexy. I am, however, more certain that this operation has frequently failed to cure the vomiting, and, speaking generally, I think that the less we look to reflex action for an explanation of abdominal symptoms the less likely we are to make serious mistakes in diagnosis.

In the particular case of *vomiting* as an association of movable kidney it will, I believe, be found that the former is often only an association, and due not to movement of the kidney but to gastroptosis, which, like the movable kidney, is the result of a hypotonus of the abdominal muscles. I am convinced that gastroptosis is more common than we formerly thought. I think it is very common.

Now I hold that vomiting alone is generally the result of something more definite than reflex action. Much more do I hold that *dilatation of the stomach* is never due to any effect, direct or indirect, of the movable kidney.

I take a similar view regarding *biliary colic and constipation*. These are not, in my opinion, due to hypothetical draggings of the loose kidney. The colic is generally due to a downward movement, probably rotation, of the liver, and the constipation to displacement of

Digitized by Google

the transverse colon. If you agree with me in all this you will also agree that the indications for kidney fixation should be limited; that the operation should be reserved for those cases in which the movement of the kidney is obviously the cause of symptoms, and these constitute a small minority.

Concerning the Vermiform Appendix.—I shall now ask you to consider the question of operation in cases of appendicitis. I venture to think that *one attack of appendicitis is sufficient to justify operation.* I do not think operation advisable *during* a first attack, nor, indeed, *during* any attack, unless there is present some special indication. If you operate during an attack you do not by any means remove all infected tissue in removing the appendix. There is, therefore, a considerable risk of continuance of inflammation and the formation of an abscess after such an operation. Thus the risk of operation is about equal to that of the attack itself if left to nature. No doubt the danger may be removed, or at least lessened, by the use of a drain, but a drain means a weakened scar and probably a hernia subsequently. I think one should allow about three weeks to elapse before operating after an acute attack. Put thus, the indications for operation in appendicitis appear sufficiently simple, but unfortunately in practice the decision for or against operation is often difficult, because the diagnosis is uncertain.

Concerning difficulties in diagnosis of Appendicitis.—Last summer I saw, with Dr. Boyd and Dr. Beatty, a boy, about twelve years old, who was suffering from pain in the right iliac region. His illness had begun quite suddenly the previous evening, and the symptoms were those common to almost any acute illness. The pain in the abdomen set in some hours after the other symptoms. When we saw him his temperature was 103°, his pulse a little over 100, and we found an extreme hyper-

Digitized by Google

æsthesia in the appendix area. He had a short cough, but he had had whooping-cough some time previously, and since then had been coughing occasionally. I felt certain that the case was one of acute and severe appendicitis. Dr. Wallace Beatty thought that we might safely delay operation until the following morning (our consultation was late in the evening), and he said there was something about the boy's cough and the mode of onset which suggested the possibility of pneumonia, and he had seen a case some time before in which pneumonia was associated with pain in the appendix region. We met again next day, and now his pulse had increased to 120, and the appendix pain had not diminished. As there were no physical signs of pneumonia we all thought it wise to open the abdomen. The appendix, when exposed, looked almost normal, but when removed and opened we found in it two recent ulcers, a small blood-clot, numbers of small bodies which looked like fig seeds, and a colony of thread worms at the apex. Either that day or the next the boy began to expectorate, and the sputum was typically pneumonic. We had it examined bacteriologically, and it was found to contain numerous diplococci. I was disappointed to learn that a similar examination of the appendix was negative.

I have given this case as an example of the difficulty in diagnosis of appendicitis, for although we were correct in thinking that there was appendicitis, we were quite wrong in our estimate of the degree of inflammation and in our decision to operate immediately. The occurrence of this area of hyperæsthesia is, I believe, recognised as an occasional accompaniment of pneumonia, and ascribed to reflex nervous action. In view of what I have said about obscure abdominal reflexes, it is of interest to remember the decided inflammatory lesions found in the appendix in this particular case. But the common difficulties in diagnosis arise from the strange *variability of the disease.*

Thus (1) *The degree of fever* varies, and rarely there may be no fever, and sometimes an abscess may form,

Digitized by Google

though the temperature scarcely exceeds 99°. (2) *The character of the tumour* varies. I have known the swelling which followed an atypical appendicitis so well defined and so hard as to lead to the mistaken diagnosis of malignant growth. Again, I remember a case in which for long the diagnosis inclined to typhoid fever, although a tumour or thickening could easily be felt in the iliac region, because the tumour was free—quite free—from tenderness. I operated in this case and found much disease of the appendix, and, in addition, cheesy matter, the relic of an acute abscess. [I may note parenthetically that there can be no question that an abscess forming in the course of appendicitis may undergo absorption, and I think that one would find some suppuration in almost all cases of appendicitis where a palpable tumour is produced in the iliac fossa.]

There is another variation which interests me much, but I have not sufficient experience to speak definitely about it. This concerns the *position of the appendix tumour*. I saw a man once who had what seemed to be an attack of appendicitis, but the tumour was situated in the right hypochondrium. In another case, in which a movable right kidney was supposed to be the cause of certain symptoms, I first made an exploratory incision in the hypochondrium, and I there found an undescended cæcum and a vermiform appendix coiled up near the gall-bladder and pylorus. This appendix appeared to be fully eight inches in length. It looked quite healthy, so, of course, I did not remove it.

These examples are sufficient to establish the fact of the difficulties often attending the diagnosis of appendicitis—difficulties, as I have said, due to the variability of this disease. In view of this I would modify my statement relative to operative indications and read it as

Digitized by Google

follows:—An operation ought to be performed in all cases of appendicitis after a single *unequivocal* attack. If there is doubt about the diagnosis one ought not to operate, for it is a serious matter to operate and find a normal appendix. Apart from other things, such a contingency is apt to lead one into plausible divergence from truth.

Concerning Operation for Gastroptosis.—I had intended to express some views regarding the limits of gastric surgery, but I have already occupied more time than I had intended. I will, therefore, only ask your attention to one aspect of this large subject.

In the case of the stomach, as in other viscera of the abdomen, there are certain definite indications to operate. Such are perforation and dilatation due to pyloric stenosis. In addition to such clear cases there are a number of others in which the indications are very doubtful. Gastric ulcer occupies, as it were, an intermediate position, and gastroptosis the position of least certainty. Ptosis of the stomach, though often not causing symptoms, at times produces both pains and vomiting. Since the pylorus is in such cases obstructed, it would seem rational to perform gastro-enterostomy to relieve the symptoms. I think anyone would be quite justified in giving this operation a trial. However, as a matter of fact, the cases of gastroptosis with vomiting are usually neurotic people. With regard to these and all other similar cases I am convinced that it is a mistake to submit them to operation. The large majority of these neurotics are, I believe, incurable, and their treatment lies near the border-line of quackery, whether it assumes the garb of surgery or takes to itself any other name.

Digitized by Google

Mr. W. Taylor said it was not always easy to be certain that symptoms were distinctly referable to movable kidney. In his experience a larger proportion of cases of stomach trouble than Mr. Gordon appeared to concede were due to movable kidney. The speaker instanced several cases bearing on the point, as also on the difficulty, of diagnosis in appendicitis.

Mr. Jameson Johnston agreed that only cases in which the symptoms were directly traceable to misplaced kidney should be subjected to operation. He had never seen two cases of appendicitis exactly alike, and he would be glad to have information as to the exact indications for operation.

Mr. Gunn thought that in almost every case where they got a tumour in the appendix region pus was present. He referred to kinking of the ureter as a test.

Mr. Blayney said that Mr. Gordon's statement that it was inadvisable to operate in acute appendicitis while inflammation was present should not be allowed to pass without some qualification. It was, of course, advisable not to operate if it could be ascertained certainly that the patient would recover. But there was no definite way of doing so, and he believed that if patients were all operated on in the first twenty-four hours in acute appendicitis there would be less harm done than by adopting the waiting policy.

Messrs. Ball, Stokes and Kennedy also spoke.

Digitized by Google

SOME POINTS IN THE TREATMENT OF ENLARGED PROSTATE.

By LEVESON-GOWER GUNN, M.D. Univ. Dub., F.R.C.S.;
Assistant Surgeon to the Adelaide Hospital, Dublin.

[Read in the Section of Surgery, January 11, 1907.]

It is hardly possible to read the current British and American medical journals without finding every week one or more papers on the treatment of enlarged prostate; most of these seem to have been written with this purpose—to demonstrate that the author's plan of operating on the gland is the best method, and that he and he only was the inventor of the operation.

It seems to be taken for granted that some form of operation is the only possible treatment. The non-operative treatment is seldom mentioned, yet I venture to think that there are more patients at the present time treated by non-operative measures for enlarged prostates, and with a large measure of success, than there are patients who are treated by operation.

To-night I wish to deal with the broad general lines, rather than with the details of treatment; to avoid any discussion as to which operative procedure is the most useful; to remain silent on operative technique, for these points are to the surgeons present already familiar, and to those who are not engaged in operative work their recital can only be wearisome.

During the past two years I have had some opportunity of seeing enlargement of the prostate treated at three different centres of learning—at London, at Paris, and at Berlin—on diverse lines, by men who had specialised at

Digitized by Google

genito-urinary work. I propose now to give you an outline of these three methods, and then, very briefly, to tell you the plan I try to carry out myself in the treatment of such cases.

At Professor Hartmann's clinic the diagnosis was made from the symptoms, the urine examined for pus and albumin, a rectal examination, sometimes followed by the passage of a soft catheter to find out the amount of residual urine. The treatment is carried out on general hygienic lines; the patient is handed a paper bearing the following instructions:—"Wine, beer, liqueurs, coffee, tea, all spicy foods, tomatoes, and asparagus must be avoided. Take a teaspoonful of bicarbonate of soda and dissolve this in a litre of filtered water; take a wineglass of this at each meal. Take short, brisk walks; do not remain more than seven hours in bed; let the bed be a hard one. Make each morning a dry friction with a rough cloth on which has been sprinkled a few drops of spirit or eau de cologne over the entire surface of the body. Do not try to pass water oftener than is natural."

As long as the patient can pass water nothing further is done unless the urine contains pus and the patient shows signs of septic absorption. Under these circumstances a soft catheter is passed daily and the bladder washed out with $\frac{1}{3000}$ oxycyanide of Hg. Should the patient be unable to pass water, he is taught to clean and pass a gum elastic catheter, and told to wash out the bladder each time the instrument is passed.

The male patients attending this clinic averaged about 150 per diem. A fair proportion of these cases suffered from enlarged prostate, yet during four weeks there I saw no case advised to have his prostate removed.

In Berlin, at Frank's clinic, the number of patients was not so large, but the methods of examination were far

Digitized by Google

more thorough. The symptoms were taken in the usual way, the urine submitted to a careful micro- and macroscopic examination; if bacteria were present, they were, as a rule, planted out. The rectal examination was followed by a cystoscopic examination of the interior of the bladder, the amount of residual urine being measured at the same time.

The treatment in cases where the urine was aseptic consisted in passing occasionally, about once a month, a full-sized metal bougie and leaving this distending the prostatic urethra for five minutes. Purgatives were freely given, and great stress was laid on this, but no attempt was made to stop beer or alcohol.

If the obstructive symptoms were severe prostatectomy was advised in all cases with aseptic urine.

In cases with septic urines a partial operation, such as Bottini's, was performed.

If the sepsis was very severe the bladder was washed out by catheter for a few days, and then perineal drainage was established.

Of the treatment adopted in London I can speak with less certainty, as the time there at my disposal was very limited. The diagnosis was made by taking the symptoms and a rectal examination; microscopic examination of the urine did not seem to be the rule. The residual urine was tested by passing a soft catheter.

The treatment recommended in every case seemed to be prostatectomy.

In looking at these three methods of treatment I felt that a less severe treatment than that adopted at London might have sufficed in some of the cases, that the Berlin method of treating the more septic cases did not seem satisfactory, while some of the Paris cases would undoubtedly have been benefited by an operation.

Digitized by Google

I try to apply the following principles in the treatment of enlarged prostate:—

Let the examination of the patient be as complete as possible. Examine the urine macroscopically and microscopically, the rectum, the urethra, and the interior of the bladder, by this finding out the extent the gland is enlarged up into the bladder, the appearance of the prostate, whether suggestive of malignancy or not, the presence of calculi, the condition of the bladder walls, if sacculated, the discharge of pus from either ureter, for on these findings the treatment of the case must largely depend

In mild cases, where the bladder wall is healthy, where the urine is aseptic and the patient able to pass water, though not to empty his bladder, I stop all alcohol, keep the bowels free, promote the healthy action of the skin, warn the patient against exposing himself to wet or cold, pass once a month, if necessary, a full-sized metal bougie. In such cases the indications for operation would be—the pain being severe, the presence of calculi, the possibility of the gland being malignant. In cases where a mild chronic cystitis is present I adopt the same treatment with the addition of internal urinary antiseptics. The indications here for operation are sacculation of the bladder or signs of infection spreading to the kidneys.

In septic cases which require catheterisation I wash the bladder for a week before doing a prostatectomy; the contra-indications to operation are—extreme age, great weakness, or a double pyelitis. In acutely septic cases with much fever I drain the bladder for a few days before doing a radical operation, and give stimulants freely during this time.

It is possible you may think from my remarks that I am not in favour of prostatectomy. This is not the case.

Digitized by Google

The operation is often admirable in its result, and in many cases is the only way in which a patient can be relieved from his distress, but at the same time I do think that many medical men hold mistaken ideas about this operation of prostatectomy. It is looked upon as an operation easy to perform, uniformly successful in its results, and having almost no mortality. Quite lately a patient informed me that his doctor told him that the operation consisted in making a small opening into the bladder and picking the gland off the floor, the operation only lasting a few minutes. This gentleman had not seen, as I have, a urinary surgical specialist struggle for forty minutes before he succeeded in "picking the gland off the floor of the bladder." Again, after this operation a stricture may form, or if the compressor urethra is injured incontinence may occur, leaving the patient in a very miserable condition. A supra-pubic or perineal fistula, as the case may be, sometimes persists for a long time, and causes much discomfort. Lastly, as to the risks of the operation, I would put the mortality at about 8 to 10 per cent., in spite of lengthy statistics showing almost no mortality. When I think of the age at which this operation is usually performed, the amount of sepsis often present, and the extent to which the patient's kidneys are sometimes diseased, it seems impossible to me that prostatectomy should not have a considerable mortality, and this mortality must be borne in mind in recommending a patient to submit to the operation. On the other hand, I do not think that the risks of a prostatectomy can ever be so great as those incurred by the constant use of a catheter.

MR. WALTON BROWNE (Belfast) was pleased to hear Mr. Gunn advocating not being in a hurry in dealing with such

Digitized by Google

cases. He believed a good deal could be done by washing out the bladder.

Mr. C. A. K. Ball expressed the view that a large number of cases had been operated on in the past which, no doubt, would have lived, and perhaps in a more comfortable state, had palliative measures been tried instead of operation. He thought that palliative measures ought to be employed unless there was absolute obstruction to the flow of urine.

Mr. D. Kennedy thought that before recommending either palliative or radical treatment the circumstances of the patient should be taken into consideration. A well-to-do patient could afford to avail himself of skilled surgical aid, and might well decide to undergo treatment of a palliative nature; but in the case of a man without means the proper employment of a catheter or other palliative measures might be attended with difficulty.

Mr. Blayney considered that there was a certain amount of danger attending the return to more conservative measures in the treatment of enlarged prostate. Many cases which had ended fatally after operation would probably have recovered had radical measures been carried out earlier.

Digitized by Google

AN EARLY CASE OF LEONTIASIS OSSEA.

By S. HORACE LAW, M.D. Univ. Dub.;
Surgeon to the Dublin Throat and Ear Hospital; and Throat Surgeon to the Adelaide Hospital.

[Read in the Section of Surgery, January 11, 1907.]

This condition was first described by Virchow, and named leontiasis ossea by him. The number of cases reported are few, the majority of which were found *post-mortem* in the dissecting room, &c., and while the condition is mentioned in most text-books little is said beyond referring back to the classical case of Virchow. On looking at this case one might almost think that it was the original one described, so great is the similarity. The chief points of interest are as follow:—

When first seen by me some four years ago the condition of swelling was much less marked, and I did not think that it was pathological, though I distinctly remember being struck by the bilateral enlargement on each side of the nasal processes of the superior maxillæ. He then complained of nasal obstruction, and the removal of adenoids gave him relief, though not for long. I saw him once or twice since then, but the peculiar enlargement did not strike me until this last occasion (November, 1906), when the growth had become marked.

The condition found is as follows:—The patient is a small boy for his age, which is twelve, but upright and sturdy; he seems strong and in good general health, and his only complaint is nasal obstruction, and that was what brought him to me.

On examination a hard, bilateral growth is seen in the infra-orbital region, extending up in such a way as to cause the eyes to be pushed outwards and also to bring about exophthalmos. The lateral walls of the nose are pushed towards the middle line so as to occlude the nostrils, though a probe can be passed up to the sphenoid, &c., and air can be blown through nose. The naso-pharynx is not involved. The pharynx and palate are normal.

Digitized by Google

The antra of Highmore are dark to transillumination, and when I passed an ordinary antrum drill in through the canine fossa on the right side I failed to reach a cavity, though I went in about an inch in two directions. The bone was soft and spongy.

One may, therefore, conclude that there are two large osseous masses lying on either side in the infra-orbital regions, filling both antra and extending in various directions, as mentioned above. Incidentally, he has dacryo-cystitis on both sides.

X-ray photographs show dense shadows corresponding to the obvious growths, and especially I would mention the shadow of the growth lying between the orbits, and the fact that the cranial vault of this child is about the same thickness as one would expect to find in an adult.

I have ventured to call my case by this classical name, leontiasis ossea, and if one compares it with the case originally described by Virchow in his "Pathologie des Tumeurs," 1869, Vol. 2, page 21, which was under the care of Forcard, one sees that it agrees very nearly with it.

It commences in early life—my patient was eight at the time I first saw him, Forcard's was twelve; but, from the description of his case, undoubtedly the condition had existed for some little time previously. My case has suppuration in the lachrymal sacs, as also apparently had the other, though this, of course, is merely a coincidence. The development has been very slow; so slow, in fact, that it would be almost impossible to measure it, though, after the lapse of a few years, the contrast is distinct and unmistakable.

Nearly all writers on surgery refer to this disease. Von Bergmann, in his "System of Surgery," Vol. I., gives an exact account, and two woodcuts, both of which show the advanced stage of the disease. He mentions the specimen (also mentioned by Virchow) in Dupuytren's Museum. I have not been able to form any idea as to

Digitized by Google

how many cases have been described, as, though most books mention it, they rather take up the historic case, and do not describe actual cases seen.

Looking back in the *British Medical Journal* for ten years I found three cases recorded. The first, in Vol. I., 1898, page 1392, described by Dr. Churton, seems very similar to my own, except that the child showed more symptoms of rickets. The second, in Vol. I., 1900, page 1230, was recorded by Dr. Stephenson, who describes the growth as beginning in the lower jaw. The third, in Vol. II., 1901, page 1341, is described by Mr. Robinson as a fairly typical case.

Unfortunately, some works do not seem to have differentiated between osteitis deformans and this condition. Suffice it to say, that in osteitis deformans the long bones are first affected, and then the skull; whereas in the condition before us the disease is limited to the head, and the face is the first to be affected. Also osteitis deformans commences in adult life; leontiasis ossea in childhood. Again, others have included it under tumours of the nasal processes. One picture, which I have found in two or three text-books, quoted as after Hutchinson, is called symmetrical osteomata of the nasal processes of the maxillæ, and presents most clearly the same facial aspect as is seen in my case, the only difference being that, apparently, it was in a grown-up man. One other condition mentioned by Bland Sutton in his book on Tumours, page 43, is worthy of comparison—namely, that many of the negroes on the West Coast of Africa present symmetrical exostoses of the infra-orbital region but there the similarity ends, as the deeper enlargement is absent, nor is there any thickening of the cranium.

Syphilitic hyper-osteoses of the skull and face might occasion some difficulty in diagnosis, but they are never

Digitized by Google

so uniform and so symmetrical, and the other symptoms of the disease would probably clear the matter up.

Again, acromegaly always begins at the epiphyses of the bones of the lower and upper extremities, and this would enable the differentiation to be easily made. The differential diagnosis between simple osteomata and this condition of hyper-osteosis should not, as a rule, present much difficulty. The age, the symmetry, the comparative painlessness, the cessation of growth in the earlier part affected, and the taking on of new growth in other parts of the face and skull, should render the differential diagnosis easy.

It is quite clear that neither syphilis nor injury can be ascribed as a cause of this very typical disease, and no treatment seems to be of any avail. Surgical methods are obviously impossible, and the administration of mercury or iodide of potash does not seem to have influenced it one way or the other.

The prognosis is nothing short of lamentable. One can only expect slow advance in the portions now affected, then the cessation of growth there, and the commencement of thickening in the other parts of the skull, till finally, often at the age of thirty-five to forty, the gradual pressure on the brain gives rise to dementia and death.

The President regarded the dacryo-cystitis not as a coincidence but rather as the direct result of the bony growth. He thought the best mode of treatment would be extirpation of the lacrymal sac on each side, as, under existing circumstances, ulceration of the cornea of a very intractable type would be likely to occur.

Mr. Walton Browne alluded to the symmetrical appearance of the two eyes. If the orbits were at all involved they must, he believed, be involved to an equal extent.

Digitized by Google

A CASE OF CHRONIC PANCREATITIS.

By W. I. DE COURCY WHEELER, M.D. Univ. Dub., F.R.C.S.;
Surgeon to Mercer's Hospital, Dublin.

Considering their comparative frequency, chronic diseases of the pancreas have not received the attention in surgery which they seem to deserve, more particularly as they are closely associated with such common affections as gastro-duodenal ulceration and catarrh, and inflammations of the gall bladder and bile ducts. From these conditions chronic pancreatitis arises by direct extension of the inflammation through the common bile duct. The presence of a stone in the pancreatic portion of the bile duct will also cause inflammation in the gland mechanically by the pressure exerted, as well as by the obstruction to the flow of the pancreatic juice. Many other causes are mentioned as responsible for an attack of chronic pancreatitis. Thus syphilis has been shown to affect the pancreas in a similar way to the other organs in the body, and changes due to the congenital form of the disease have been observed as early as the fifth month of uterine life. Tubercle, enteric fever, influenza, have all been thought accountable for various cases of pancreatitis; and alcoholism is supposed to produce the same changes as are familiar in cases of cirrhosis of the liver, but as regards this cause it must be remembered that the relation between alcoholism and cirrhosis is extremely vague and has not been proven. The pancreas undergoes fibrous changes like the kidney and other organs as a result of endarteritis and general arterio-sclerosis. The following

Digitized by Google

is a brief account of a case which first brought this subject under my notice:—

P. C., aged thirty-five years, was admitted into Mercer's Hospital in December last. He was emaciated, and stated he had been losing weight for the past year. For six or seven years he had suffered from a dull gnawing pain in the right hypochondrium and epigastric regions, which usually remained for about two months, and then for a short interval disappeared. He never had ague-like attacks nor pain resembling biliary colic, nor was the pain in any way associated with the taking of food, although vomiting was a fairly constant symptom. The patient was not jaundiced on admission, except for a yellow tinge in his sclerotic, but he assured us that on several occasions when the pain was unusually severe he had become distinctly jaundiced. He always suffered from constipation, and on admission to hospital the stools were clay-coloured and offensive. The urine was free from albumen, sugar, and bile. On examination of the abdomen no tumour could be felt, the liver was not enlarged, but there was an area of tenderness on deep pressure, which extended from above and to the right of the umbilicus upwards towards the eighth and ninth costal cartilages. The case was thought to be one of stone in the common duct, and operation advised. The patient was placed with a sand bag under the back at a slightly higher level than the liver, and the table sloped so that the head was slightly raised and the feet low. By this means, when the abdomen was opened, easy access was obtained to the liver, gall-bladder and bile ducts, and the area of operation was rendered still more clear by the slipping down of the intestines by gravity towards the pelvis. The liver was raised up and the fundus of the gall-bladder first examined, it was found healthy and slightly distended with bile. This alone was evidence against the blockage of the common duct by stone, but not conclusive evidence, for it has been shown that where chronic pancreatitis and stone in the common duct co-exist the gall bladder may be distended in contradiction of Courvoisier's law. The neck of the gall-bladder was next examined, and found to be included in a mass of adhesions which involved the colon, liver, duodenum, gastro-hepatic omentum and pylorus, and obliterated the foramen of Winslow. The next step in the operation was one of some difficulty, and con-

Digitized by Google

sisted in wiping away the adhesions with gauze sponges and freeing the various organs as far as possible. During this dissection the supraduodenal portion of the common bile duct was exposed and examined, and then traced downwards to the point where the duct becomes lost in the substance of the head of the gland, or is found in a groove on its posterior surface. The head of the pancreas was now found to be enlarged, hard and nodular, having the feel of an organ in which a considerable overgrowth of connective tissue had taken place. No stone could be felt in the neighbourhood of the posterior surface of the head of the pancreas, but it was now evident that all the symptoms, the emaciation, the pain, and the indefinite attacks of jaundice and indigestion could be accounted for by the pancreatitis. Drainage of the gall-bladder was therefore decided upon, the rationale of the treatment being that through the intermediary of the bile passages the pancreas itself is drained, and that there is therefore a relief of tension in the ducts, a consequent subsidence of the inflammation in the head of the gland, and *parri passu* the pressure on the third and fourth portions of the common duct is diminished and the biliary obstruction gradually disappears. It is doubtful if such a result can be obtained in those cases where cirrhotic changes are marked and atrophy of the head has taken place; but these changes are only brought about in the pancreas after a prolonged period of inflammation, and in all likelihood by the time such had occurred glycosuria or other untoward symptoms would have arisen to contraindicate operation. On the other hand, the symptoms of chronic pancreatitis lead one to operate long before the hypertrophic stage has given place to marked cirrhosis. I would like to draw attention here to the extreme difficulty of detecting, by the sense of touch, inflammation of the head of the pancreas, unless it is well marked. Opportunities for examining the pancreas in the living are not numerous, and the feel of the gland may create erroneous impressions as to whether it is healthy or inflamed. Robson calls attention to this and describes a typical case of inflamed pancreas as feeling like a hard waxen cast. There appears to be no doubt, however, that it is still more difficult to see changes in the pancreas at a necropsy, for the early swelling due to retained secretion and engorged blood-vessels disappears at death. A very careful peritoneal toilet was made, as although in healthy animals the bile has been

Digitized by Google

proved in most cases to be sterile and incapable of producing septic peritonitis, yet in the presence of such conditions as chronic pancreatitis and gall-stones, streptococci, staphylococci, and above all the *Bacillus coli* have been cultivated from the bile. The gall-bladder was opened and a large drainage tube inserted in the manner recommended by Moynihan and Robson. The tube was stitched in by two layers of sutures in such a way that when it loosened a valvular opening remained in the gall-bladder favouring rapid closure of the fistula. It is well to bear in mind, however, that in order to cure inflammatory conditions, whether in the pancreas or in the gall-bladder and bile ducts, prolonged drainage is sometimes necessary, and the rapid closure of the fistula should not be encouraged: the reappearance of bile in the stools, the disappearance of jaundice, and the absence of micro-organisms in the bile are factors which help to decide when sufficient drainage has been obtained. In my case the tube loosened, and was removed on the ninth day after operation; the fistula closed in the following fortnight, and the patient was allowed home one month after his admission into hospital.

It is worthy of mention that the patient vomited bile repeatedly on the day after operation, and suffered in consequence from insatiable thirst; the vomiting was produced probably by the stimulation of the liver and the filling of the ducts with bile during the operation, and was gratifying inasmuch as it showed, at all events, that the ducts were patent. The bile did not flow extensively through the tube until the evening of the second day, and the stools became normal in colour about nine days after operation. The man is at present working as a labourer, and is free from all pain, but at times he notices his stools become light in colour. The onset of chronic pancreatitis, as in my case, may be very insidious, the patient complaining of such symptoms as indigestion, flatulence, a dull ache above the umbilicus from which he is sometimes free, constipation and clay-coloured stools. Sometimes, indeed, the stools are bulky and quite out of

Digitized by Google

proportion to the amount of food eaten. From such a train of symptoms no diagnosis could be made, but if following on them the patient shows signs of even slight biliary obstruction, the jaundice increasing at every attack until it finally becomes constant, then, especially if the gall bladder be dilated, the case is most likely one of either chronic pancreatitis or cancer of the head of the gland. In the absence of dilatation of the gall bladder, a stone in the common duct must be suspected. The jaundice in the case of stone is often of a less permanent type than that produced either by malignant disease or chronic pancreatitis; the stone is usually loose, and acts like a ball valve, the jaundice in consequence coming and going, and being usually accompanied with the pain of biliary colic. From malignant disease of the head of the pancreas it is often impossible to diagnose simple chronic pancreatitis, and even when the abdomen is opened the same difficulty will be experienced in differentiating between hyperplasia and a malignant growth, as in similar conditions of the pylorus. Suffice it is to say that in many cases where a hopeless prognosis was given, simple drainage of the gall bladder produced an absolute cure.

In some cases the onset of chronic pancreatitis is marked by far more acute symptoms than the foregoing. There may be attacks like biliary colic, rigors, nausea and vomiting, severe pain in the right hypochondrium radiating across the abdomen to the left more frequently than towards the scapular regions. Intense jaundice, though not necessarily occurring with the first attack, usually becomes a prominent symptom. It is small wonder that with such an onset chronic pancreatitis has been mistaken in a number of the recorded cases for a stone in the common duct. It must be clearly under-

Digitized by Google

stood, however, that the two conditions are associated, for if there be a stone in the common duct for any length of time chronic pancreatitis will certainly supervene and co-exist with the stone. In proof of this in many cases in which a stone was removed from the common duct the head of the pancreas was found enlarged and sclerosed, necessitating deep incisions into its substance in order to remove a stone by the retroduodenal operation. If the stone is eventually passed the chronic pancreatitis usually persists and produces a train of symptoms which exactly mimic those due to the former internal blockage of the duct. From a diagnostic point of view, therefore, it will be seen that two errors are likely to be made. The first is of paramount importance, viz.:—It may be thought that a case of jaundice advanced in years, with a distended gall bladder, in which a tumour can be felt and emaciation is a marked symptom, must necessarily be malignant disease; this is disproved by the recorded cases, which demonstrate that a hyperplasia of the head of the pancreas with pressure in the common bile duct will produce a similar train of symptoms, which disappear after operation. The second error of mistaking a simple chronic pancreatitis for obstruction of the terminal portion of the common duct by stone is not of so much clinical importance, since modern surgery teaches that in both conditions an operation is called for, and they are so closely associated that a differential diagnosis, though possible, need not be considered. In addition to cancer of the head of the pancreas and gall stones in the common duct, cancer of the liver and chronic cholangitis may lead to symptoms resembling chronic pancreatitis, and the possibility of mistaking any of these conditions for malaria must always be borne in mind. The relation of chronic pancreatitis to diabetes is relevant in

Digitized by Google

one or two particulars to the surgery of the gland. In chronic pancreatitis, arising as it usually does from some extension of inflammation up the duct, the islands of Langerhans are not early involved, and there is apparently no interference with the internal secretion in these cases. Glycosuria is not present until late, but when it does appear the time for operation usually is passed. In such cases of chronic pancreatitis diabetes is anticipated and prevented by timely operations. Occasionally glycosuria is an early symptom of the inter-acinar type of pancreatitis, the inflammation commencing within the gland and rapidly attacking and destroying the islands of Langerhans determines the presence of sugar in the urine before other symptoms have exhibited themselves; such a condition of affairs occurs in cases of amyloid disease.

Examination of the urine and fæces will give valuable information in cases of chronic pancreatitis and materially help in building up the diagnosis. The clay-coloured stools are not accounted for so much by the absence of bile as by the presence of undigested fat. Bile in most cases of pancreatitis has been found by chemical means in the fæces, the only cases where it is absent or present in very small quantities are those in which there is a carcinoma of the head of the gland.

Evidence of incomplete proteid digestion in cases of chronic pancreatitis may be found by the presence of undigested muscle fibre in the stools. Mayo Robson points out that the fæces are acid to litmus in cases of early pancreatitis, but alkaline in simple jaundice, a useful clinical test, if future experience shows it to be reliable. Sahli invented an ingenious test to show insufficiency of pancreatic digestion. A gelatine capsule hardened with formaline and containing iodoform is

Digitized by Google

swallowed by the patient. The capsule resists gastric digestion, but is rapidly acted on by the pancreatic juice, in consequence iodine will appear in the urine in from four to eight hours when the pancreatic secretion is sufficient. The presence of alimentary glycosuria is another diagnostic sign worthy of consideration. Two or three ounces of sugar are given before breakfast and the urine tested in a couple of hours. When sugar is present, disease of the pancreas is suspected, and in ten out of fifteen cases where there was alimentary glycosuria, and on which a *post-mortem* examination was obtained, marked chronic pancreatitis or cancer was found. This test was based on the experimental work done in connection with the relation of pancreatitis to diabetes, when it was shown that although removal of a portion of the pancreas did not produce diabetes, yet the gland was only imperfectly able to perform its duties on carbohydrate metabolism, and so if an animal with only a portion of the pancreas was fed on large quantities of carbohydrate, sugar temporarily appeared in the urine. The presence in the urine of fat splitting ferments is mentioned among a host of other signs, based on chemical analysis, as being in favour of the presence of pancreatitis.

Digitized by Google

FRACTURES OF THE SHAFT OF THE FEMUR—A DISCUSSION ON THEIR TREATMENT AND PROGNOSIS.

By SIR THOMAS MYLES, M.D. Univ. Dub., F.R.C.S.;
Surgeon to the Richmond Hospital.

[Read in the Section of Surgery, May 10, 1907.]

For a long time past it has seemed to me that surgery, while advancing by leaps and bounds in other domains, has been singularly unprogressive in the matter of fractures, especially of fractures of the thigh. One reads every day in the journals records of daring and brilliant operations in the abdomen, thorax, or cranium. Suggestions full of careful thought are made by many workers in these fields, but, so far, little progress has been made, and, with a few exceptions, but little surgical thought has been bestowed on the subject I have chosen for my communication. In this particular branch of surgery the surgical mind seems to have fallen into what Swinburne calls "the slothful hebetude of the grave." We are still not merely in the early Victorian era—that age of ugliness—but it is hardly an exaggeration to say, in the days of Galen and Hippocrates.

The full tide of human thought has swept past us, engulfing old landmarks in almost every direction, but here a rigid conservatism apparently offers an insurmountable obstacle to progress, and one still sees in a most up-to-date hospital, fully equipped with the costly appliances demanded by modern surgical technique, patients with broken thighs treated by practically the

Digitized by Google

same methods as their predecessors have been treated for the last hundred years, or even more.

Very few appear to consider the subject worth giving more than a passing thought to, and the result is that progress has been practically nil. And yet the subject is worthy of the most careful consideration, as I hope to show very soon.

One reason why it has had so little consideration bestowed on it, perhaps, is that medical men themselves rarely suffer from fractures of the femur, in this respect contrasting markedly with appendicitis, enlarged prostate, and other more widely diffused ailments, the prospect of being a possible subject to each or any or all of these maladies being constantly before our mental vision, thus stimulating that imaginative faculty which is essential for novel suggestions.

If medical men themselves were more frequent sufferers from these injuries they would long since have rebelled against the traditional methods of treatment, and more modern methods would soon have displaced the older ones.

Fracture of the femur is not a common accident; practically it presents itself amongst two classes of the community only—the workingmen and the sportsmen. Of course it may happen to anyone in a railway or other accident, but, speaking broadly, it is met with most frequently amongst the classes I have mentioned. Now it may not be of any great consequence to a millionaire or a salaried official to be lame and weak in one leg, but it means a great deal to a hunting man, and still more to a workingman, whose bread depends on his muscular efficiency.

The first question I have set myself to consider, therefore, is that of the prognosis in such an injury in a work-

Digitized by Google

ingman or a hunting squire. Is a workingman as efficient after this accident as before, and can a sporting man ride, shoot, play cricket, tennis, &c., as well as he used to before he broke his femur? The answer to these questions can be supplied in part by one's individual experience, and in part by a study of museum specimens and X-ray photographs. My own experience of the result of routine treatment in these cases is not very encouraging. I have found that in nearly all cases occurring in adults there has been considerable shortening and consequent lameness, some stiffness in the knee-joint, some limitation of the movements of rotation at the hip-joint, a varying degree of muscular atrophy, pain with changes in the weather, and almost always an ugly nob of callus to be felt or seen at the seat of the united fracture.

Some of these patients amongst the well-to-do found that riding became painful afterwards, probably from the pressure of a bony projection on some of the nerve trunks; none of them could run or jump as they used to do, and they all suffered for some years after from coldness and œdema of the foot on the injured side. At first I felt inclined to blame myself for these results, but further study of the subject soon taught me that such results are the invariable and inevitable results of the methods of treatment usually adopted—methods sanctioned by tradition and the teaching of the schools.

A study of the museum specimens of this injury is very instructive, and calculated to modify one's previous conception of what actually takes place in these cases. We are not all pathologists, nor have we all access to museum specimens, by the study of which we may hope to educate ourselves; consequently we are not much to blame if our imaginary conception of what takes place in these in-

Digitized by Google

juries is found to differ very materially from the actualities presented by museum specimens. I remember once, some years ago, asking a well-known surgeon of great intelligence—now, alas! no more—if he found as great difficulties as I had in effecting even decent approximation of the broken ends in fractured femur. To my astonishment he told me that under an anæsthetic he never had any difficulty in effecting perfect end-to-end apposition in transverse fractures, and that he always got perfect results in such cases! I could only congratulate him on his good fortune, and envy him the mental condition which enabled him to hold such a belief.

Now such a belief—absolutely foundationless—is fairly widespread. The general idea amongst such believers is that it is not difficult under complete anæsthesia to get end-to-end apposition of the fragments, that they can be held in this position by splints, weight and pulley arrangements, &c., and that a nice spindle-shaped lump of callus surrounds and holds the ends together, and that the patient's leg is just as well as ever after the fracture, if not a little better!

It is a very curious fact that amongst the many museum specimens of this injury I have examined I have never yet had the good fortune to meet one illustrating this method of union. One is forced either to believe that the museum contributors for several generations have wickedly combined to exclude such specimens from their collections or, "*horribile dictu*," that such specimens do not exist. That the latter is the more probable explanation is supported by a study of X-ray photos of these injuries. Of these there are a great many now in existence, and men who have made a special study of X-ray work—such as Dr. R. Lane-Joynt and Dr. W. Haughton—

Digitized by Google

tell me that they have no specimens in their collections illustrating this traditionally-accepted method of union.

As a matter of fact a study of museum specimens and of X-ray photos show certain constant factors in these cases:—

1. There is always shortening due to overlapping of the fragments.

2. The lower fragment may be in front or behind, inside or outside the upper fragment; it is never exactly where it ought to be.

3. The lower fragment is rotated either inwards or outwards; it is never in perfect alignment with the upper. It may be in approximate alignment, but it is never in perfect alignment, and it cannot be.

4. It is absolutely impossible to decide by the unaided eye, touch, or measurements what the actual displacement of the fragments is. The mass of muscle surrounding the bone, the extravasated blood, the enveloping skin and fasciæ all combine to soften the asperities of the actual outline in the same way as a fresh fall of snow smooths out and diminishes the irregularities of contour in a landscape.

It is the tell-tale X-ray which shatters one's hopes and shows us that the limb, after all our effort, is little better than a whitened sepulchre; that we are still far indeed from the realisation of our ideal.

The amount of actual bony displacement that may exist, completely masked by the soft parts, is incredible to all save those who have studied this question with the aid of X-ray photos.

Let anyone glance for a moment at the specimens illustrated here, and he will, I think, have no difficulty in understanding why such patients complained of pain and weakness in the limb, of marked lameness, of coldness and

Digitized by Google

œdema of the foot below, nor is it more difficult to understand that men so afflicted can no longer ride, run, swim, or tramp across a moor, gun in hand, as they did before their accident.

It is, I think, fairly obvious, therefore that fracture of the shaft of the femur is a very grave accident indeed, and one well worthy of the most careful consideration.

Hitherto surgeons have quietly accepted the teachings of the great men of the past, that shortening of an inch or more is the inevitable outcome of such injuries, and that nothing can be done to prevent it. But surely this is an unworthy position to take up at this period of the world's history. Are we not bound to make use of all the advantages that progress in other directions has made available for us? Is the technique which has made safe the great operations in other branches of surgery not to be utilised in this particular branch of our work? Are we bound to doom a young man to lameness and inactivity for the rest of his life through lack of courage to face a comparatively novel problem?

My plea is for greater boldness in dealing with these cases; that in suitable circumstances we should not deny them the advantages, added risks notwithstanding, which the improvements in modern technique have placed within our reach. Let the facts be stated frankly and plainly to our patients; let them understand clearly the risks and advantages on the one hand, the freedom from risk and disadvantages on the other, and I am convinced that the average young man will not hesitate to face the risks inevitably incidental to all operative methods.

There is one other point to which I should like to refer before leaving this part of the subject. Hitherto the loss of muscular efficiency in these cases has been attributed to the shortening due to the overlapping of the segments and possibly to some angularity at the seat of union.

Digitized by Google

While not denying that these factors play a prominent part in producing the ultimate result, I am convinced that too little importance has been attached to the want of perfect alignment in the united fragments. Somehow most of us in making a mental picture of the femur consider it as roughly a straight bone, slightly convex forwards. Take a normal femur and study it carefully; it is by no means a straight bone, but a series of curves and angles. I need not attempt here to give a verbal picture of the anatomy of the femur. It is to be found with more or less accuracy in every text-book of anatomy. But if we look carefully first at a normal femur and then at any of the specimens of united fracture in the museums, we cannot fail to see how large a part the inevitable lack of perfect alignment must play in producing that diminution of muscular efficiency which is so painfully apparent in these cases.

No method of treatment other than exposure by dissection holds out any hope of a perfect restoration of alignment. It is only by actually seeing the parts dove-tailed back into their original positions that we can ensure perfect alignment. Apart from this operative exposure, the most careful measurement, palpation and manipulation are in vain—even the X-ray itself fails us here. True we can rotate the lower fragments inwards or outwards, but practically we can neither precisely determine the actual position *qua* rotation of the upper fragment, nor can we adequately correct it if we wish to do so by any appliance at present at our disposal. I am quite aware that in urging the more frequent use of operative methods I am asuming a grave responsibility, and this responsibility I propose to diminish by certain limitations. In the first place, operations of the kind to be described hereafter should not be undertaken by men other than those en-

Digitized by Google

gaged in daily operative work at the hospitals. They should not, save in very rare cases, be undertaken in private houses. They should never be performed save in healthy youths or adults.

A very perfect technique must be at the operator's disposal, and plenty of skilled assistants. The operator must have an adequate armamentarium, and his requirements in this direction should be determined by previous experiment on the cadaver.

Given all these preliminary requirements, operations on fractured thighs should not be more hazardous than any of the countless operations performed in the hospitals of a great city throughout the year.

It is fairly well known now, thanks to X-ray photography, that the broken ends of the fragments present great diversity in the minute details of their appearance. Sometimes the bone is broken nearly square across, with or without partial or complete detachment of angular fragments. In others the line of fracture is of varying degrees of obliquity, ranging from one to as many as five inches in length. In cases of extreme obliquity, the long axis of the bone seems to be almost bisected, so that each segment offers but little holding ground for any mechanical appliance to be embedded in. In others, again, the line of fracture is an irregular spiral; while in some the bone may be extensively comminuted. It is obvious, therefore, that it will be very difficult to make any one method of treatment equally efficient for the treatment of these diverse conditions, and the surgeon who proposes to substitute operative for non-operative methods of treatment must be prepared to modify his plans as the actual conditions to be dealt with are revealed by X-ray examination, and by the preliminary exposure of the seat of fracture.

Digitized by Google

The methods I now propose to discuss are of three kinds:—

1. Simple wiring of the fragments together after exposure and drilling.

2. A modification of the ingenious apparatus suggested by Mr. Park Hill, of Denver.

3. The use of short steel screws as recommended by Mr. Arbuthnot Lane.

SUTURING WITH WIRE.

Even with the most perfect equipment the securing of a plain transverse fracture by drilling and wiring is a task of great difficulty. To get the parts rigidly into position at least four separate wire sutures must be passed, each suture entering the periphery of one segment, then emerging through the medullary canal at the seat of fracture, re-entering the medullary canal of the other segment and emerging at its periphery.

If four such sutures can be passed and secured with a uniform degree of tension, an excellent result will be achieved. But practically this is impossibe to accomplish. One suture must be at the side of the bone remote from the surgeon, and this suture it is practically impossible to make secure.

Assuming that the ends of the fragment have been projected through the wound and duly drilled, the sutures can now be passed, with some difficult manipulation no doubt, but still the four sutures can be passed and got into position for tightening. Now comes the crux. The segments when reduced are overlapping. This overlapping has to be overcome by traction on the lower segment, but this very traction now makes the aponeuroses and muscles so tense that there is no room for one's hands to grasp and make traction on the suture most remote

Digitized by Google

from the operator, and if this deepest suture is not made taut a hinge movement will be permitted by the other three—not only will a hinge movement be possible, but even a worse result may happen—namely, that the lower fragment may slide so far outwards as to be ultimately in lateral, not end-to-end, apposition.

This result is due to the fact that so-called flexible wire, iron or silver, is never as flexible as silk or other common suture material. It is mechanically impossible to make wire sutures as tight as silk could be made around the four angles which each suture must traverse. Further, any slight initial relaxation that may have occurred at the operation tends to increase from day to day, partly by actual stretching of the wire itself, partly by the absorption of the bone from pressure at the drill holes. If the broken faces can be kept squarely in position these changes do not occur, but if the least lateral movement is allowed by the absence of the fourth suture the factors described at once become operative.

I do not mean to say that this is a fatal objection to the method, as the defects may be neutralised by splints, but then one great advantage of operation is lost—viz., the ability to dispense with the splints altogether and to procure immediate fixation of the fragments in their original relative positions. A consideration of these factors and practical experience have led me to abandon the simple wiring method in clean cut transverse fractures.

In oblique fractures the problem is totally different, and here the wires may be used most effectively. The method I have adopted in such cases is as follows:—

An incision is made on the outside or in front, and the segments examined by both sight and touch. In these oblique fractures it is usually fairly easy to determine the previous relations of the spikes and recesses on the two frag-

Digitized by Google

ments to each other. Once this is done it is easy to drill at least one hole in each segment in such a position as will give satisfaction afterwards. It is not advisable to drill the bone directly at right angles to its long axis. It is better to drill it obliquely—that is to say, to drill the lower fragment at a slightly higher level than the upper. This makes the wires more tense when the muscles tend to draw the lower segment upwards. This difference in level must not be too great, as then there will be a thread of wire intervening between the fragments, preventing perfect apposition. It may be advisable to drill a second, or even third, hole, but in the long oblique type one drill hole is sufficient—the upper and lower ends being simply secured by a circular lashing of wire or chromic catgut.

THE PARK HILL METHOD.

The method that I think, on the whole, promises to give the best results is that associated with the name of Mr. Park Hill. The principle underlying this method seems to me to be very sound, though in the original appliance certain mechanical deficiencies became apparent on use. These deficiencies have been largely corrected by adopting the suggestions of my friend, Dr. R. Lane-Joynt, whose mechanical aptitudes are so well known, and are placed so freely at the disposal of his professional brethren.

The apparatus which he has devised and perfected, and which I am now using fairly extensively, may be described as follows:—First let us understand the fundamental principle on which the instrument is based. Everyone is familiar with the fact that a fractured tibia undergoes but slight displacement if the fibula remains unbroken. To Mr. Park Hill belongs the credit of proposing to supply to a broken femur or humerus an artificial equivalent of the fibula in the lower limb.

Digitized by Google

To do this several holes are drilled in the upper and lower segments of the broken femur, at right angles to the long axis of the bone. In these holes long, strong, steel screws are firmly embedded, their free ends projecting six or seven inches, or more, beyond the muscles and skin of the limb. If these free ends are now caught in a long clamp, so strong and so tightly clamped that the screws cannot move, it is obvious that the clamp becomes practically an artificial fibula to the femur, and it is equally obvious that if the fragments have first been absolutely restored to their original position, and when so restored that the clamp has then been tightened on the screws, nothing short of great violence can disturb the bony segments. When first using this apparatus we met with certain mechanical difficulties, and all the modifications suggested and executed by Dr. Joynt have been designed to overcome these difficulties.

First you have the difficulty arising from the fact that the femur is curved slightly and the clamp sides are straight. In other words, assuming that four or six long screws are put from outside into the shaft of the femur, say one inch apart, and exactly equi-distant from the anterior and posterior surfaces of the bone, a line connecting the external ends of these four or six screws will be a curved line, while the sides of the clamp that holds them are in a straight line. The result of tightening the clamp, therefore, will be to tend to diminish the normal forward convexity of the femur.

On the other hand, if the sides of the clamp be curved, it will be necessary to equip oneself with a number of clamps to suit the varying degrees of femoral convexity and the exact seat of the injury. Again, if six screw holes have to be drilled in the shaft of the bone, to ensure that they are exactly in the proper line, each equi-distant

Digitized by Google

between the anterior and posterior surfaces, it will be necessary to make an enormous incision, and to expose the bone over a very large area.

These difficulties have been overcome in Dr. Joynt's modification of the apparatus by interpolating a universal joint, capable of being rigidly locked in the middle of the clamp. This device makes the instrument easier of application, and increases its efficiency enormously.

Thus it is no longer necessary to make a huge incision, exposing the bone over a large area. It is now sufficient to make one incision, say two inches in length, at the seat of fracture, to enable the operator to see and feel that perfect adjustment has been accomplished. The screws, four or six in number, are inserted through small puncture wounds at some distance from the site of fracture. So long as those in each segment of bone are fairly well in line it is immaterial if those in the upper segment are not at first completely in line with those in the lower, as the universal joint in the clamp allows the lower segment to be rotated in any desired direction until perfect alignment of the segments is obtained, when the clamp can easily be locked securely.

Parenthetically I may say here that the farther from the seat of fracture that the top and bottom screws are inserted the greater will be the mechanical advantages of the method in securng absolute rigidity in the fracture.

The drawings attached explain clearly the principles upon which this ingenious device is based, and will be easily understood by anyone.

The method, it will be apparent, is not suitable for children, as the femur is too small in calibre to carry the screws well, and force applied through the screws, using them as levers, may cause longitudinal fractures of the

Digitized by Google

bone; but for uncomplicated cases in adults it promises to be the easiest and safest method yet devised.

Moreover, in fractures near the trochanters above, or the condyles below, it is incomparably superior to any method of wiring or the use of screws. It is in fractures near the trochanters that the most hideous results are met with from the ordinary treatment by splints, flexion of the thigh, bandages, &c.

The upper segment in these cases is seriously displaced; being usually flexed, abducted and everted, the lower fragment is drawn up inside and behind it, so that when union takes place the result is something which resembles the striking end of a polo mallet. The shortening and irregularity are not the worst features, however. Owing to the abduction of the upper segment the top of the great trochanter is approximated to the pelvis, so that when union has taken place actual abduction becomes impossible owing to the top of the trochanter striking against the pelvis.

Further, it is practically impossible to maintain any real extension by strapping plaster fixed above the knee only, a limitation necessitated by the flexion of the thigh required to bring about even approximate parallelism of the two segments.

Another point not to be forgotten is that in fractures close to the trochanter minor splints applied in front exert little or no pressure on the upper segment, owing to the fact that a bandage around the thigh at the level of the perineum is really below the end of the upper fragment.

Similarly in fractures near the condyles, where great distortion occurs through the rotating influence of the calf muscles, the Park Hill apparatus promises to be of great service.

Digitized by Google

In this situation wiring is, from anatomical and mechanical reasons, very difficult, involving great labour and prolonged exposure of the parts, whereas even a very small lower fragment will permit of the application of two screws, one of which may be inserted into the condyle itself if necessary.

The clamp and screws are left *in situ* for about four weeks, when, in a healthy patient, it will be found that fairly firm union has taken place. One very striking clinical fact about the use of this method is the immediate relief from pain that the patients obtain. All muscular spasm seems to cease, good sleep is obtained, and the discharge of the natural functions is no longer an ever-recurring painful ordeal.

If the technique has been perfect one dressing suffices for the entire case. When this dressing is removed a number of small crusts are found around the apertures in the skin through which the screws emerge. These latter are gently withdrawn by unscrewing. They should not, even if loose, be pulled out. In a few days' time the minute channels have healed and the patient is practically well, with a limb, save for the muscular atrophy due to inaction, as efficient and useful as before his injury.

In all these operations it will be advisable to have X-ray photos taken at intervals from points 90° apart, to ensure that perfect apposition is being maintained throughout.

THE USE OF SCREWS.

This method, which owes its origin to the suggestion of our brilliant countryman, Mr. Arbuthnot Lane, is well worthy of a more extended trial than it has hitherto received. It is especially applicable to cases of oblique

Digitized by Google

fractures; the greater the obliquity the better, provided that the ends of the bone are not comminuted.

The method of employing screws has been given with such amplitude of detail by Mr. Arbuthnot Lane that it is not necessary for me to refer to it here. A word of warning, however, is necessary for those who are yet practically unacquainted with the method, but may wish to make a trial of it. It must not be forgotten that to ensure getting the screws exactly into correct position the fragments must first be accurately reduced, and then firmly held in position by the special forceps designed for the purpose. This necessitates rather a free exposure of the bone and detachment of the muscles from the areas grasped by the forceps blades. If this is not done necrosis of the crushed muscle fibres may ensue and afford a nidus for infective organisms to develop in.

Again, in the small bones of women and boys the screws hardly get enough grip to make secure union. In the adult this objection does not hold, and excellent results indeed can be obtained. In fact, in a satisfactory case, the after result of the use of two well-placed screws is, to my mind, better than that obtained by any other method, but it must be acknowledged that it requires a higher degree of mechanical aptitude to use the screws properly than to employ the wire or the Park Hill apparatus.

One has also to keep clearly before one's mental vision the position of the femoral vessels, that they may not be injured by the ends of the screws coming through the bone, and the length of the screws to be used must be very precisely determined before insertion.

All the precautions as to riming the proximal compact layer of bone so as to allow of depression of the head

Digitized by Google

of the screw, insisted on by Mr. Lane, must be carefully adopted if success is to be achieved.

It will, of course, be understood that in this method the incision to expose the fracture may be in front or outside, as may seem most convenient, but the presence of the femoral vessels prohibits incision on the inner side of the thigh.

Recently an ingenious suggestion has been made to use an aluminium plate as an imbedded splint by fixing it with screws to the two fragments and closing the wound over the lot.

I have no practical experience of the method, and therefore do not venture to offer an opinion on its merits. Further experience by its originator will doubtless in time enable us to contrast its comparative efficiency with the methods described above.

In concluding this communication I may be permitted to offer a word of advice to those who may desire to practice one or all of these methods, but as yet are without practical experience on the subject.

1. Find out as much as you possibly can as to the exact condition of the broken bone at the seat of fracture by a series of X-ray photos.

2. Think out very carefully beforehand which method is likely to give the best result.

3. Drill the bone with a Morse drill set in a brace.

4. If using the Park Hill screws see that the tap for cutting the screw thread in the bone is of exactly the same size as the screw to be inserted later, and is but little larger than the Morse drill.

5. Never try to hurry the tap, let it cut its own way in the bone.

6. When the ends of the fragments are exposed, measure their diameters and mark the screws at a point

Digitized by Google

from their buried ends, exactly equal to this depth, so that they may not project through the bone, and perhaps injure the vessels.

7. If using the Park Hill method remember that the wooded faces of the clamps taken from the boiler wet will shrink as they dry, and the screws holding them in position must be tightened in an hour or so.

8. Take an X-ray photo the next day from two points 90° apart to insure that position is maintained.

9. Remember that to pass a ligature around the bones a very large and powerful needle must be used, as the tough tissues about the linea aspera offer a considerable obstacle to the passage of a needle.

Lastly, practice the operation on the cadaver before trying it on the living.

Digitized by Google

INTESTINAL OBSTRUCTION.

By WILLIAM TAYLOR, M.B. Univ. Dub., F.R.C.S.;
Surgeon to the Meath Hospital and Co. Dublin Infirmary.

The present communication has for its genesis some twelve cases upon which I have operated during the past two and a half years.

The cases are:—Three cases of acute intussusception: two cases of strangulation produced by a Meckel's diverticulum; two cases of strangulation produced by acquired bands; five cases of obstruction due to malignant disease of some portion of the colon.

The time at my disposal forbids me giving the notes of each case, but I shall briefly report an illustrative case from each group.

Case I.—Male, aged four months, admitted into hospital at 3 30 a.m., about seven hours after the onset of pain. The infant had vomited several times in the interval, and its bowels had acted twice. There was neither blood nor mucus on the napkin. The diagnosis of intussusception was made by the then House Surgeon, Dr. A. N. Crawford, who, while awaiting my arrival, had everything prepared for operation, which was performed at 4 15 a.m. Before opening the abdomen the intussusception could be readily detected in the transverse colon. The abdomen was opened according to my usual custom, by an incision through the right rectus muscle, the centre of the incision corresponding to the umbilicus. The intussusception, which took its origin in the ileo-cæcal region, was readily reduced, and the abdominal wound closed by suturing in layers. Convalescence was uninterrupted, and the infant was discharged well on the sixth day.

Case II.—Boy, aged ten years, sent to me by Dr. Henry Day,

Digitized by Google

who saw him about eighteen hours after the onset of his illness, which was characterised by sudden and intensely severe abdominal pain, accompanied by vomiting. As the bowels had not acted for two days, a dose of oil was given by the mother, but it was promptly ejected. An enema given by Dr. Day produced no effect, consequently he sent on the case to me as one of acute obstruction. On examination the abdomen was moderately distended, and peristaltic action could be detected at intervals in a coil of intestine situated between the umbilicus and the right iliac fossa. There was some free fluid in the abdomen. From the acuteness of the case, and from the fact that free fluid could be detected in the abdomen within such a short time after the onset, it was thought that strangulation of a coil of intestine with its mesentery by a band was the most likely cause of the trouble. The age of the patient and the absence of anything in his previous history that would lead one to suspect him of having had a peritonitis induced us to hazard the diagnosis of strangulation by a Meckel's diverticulum. The abdomen was opened directly, and the cause of obstruction was discovered to be what we had suspected. The strangulated coil was relieved and brought outside. Its colour quickly changed, under a stream of warm saline, from a deep purple to a redder hue. The condition of the patient at this time was not at all reassuring; consequently, having replaced the strangulated coil within the abdomen, I determined to do no more than remove the impervious cord-like free end of the diverticulum, after which the wound was quickly closed. The boy reacted well, and left the hospital on the seventeenth day. Two months later he returned, when I removed the remainder of the diverticulum by splitting the muscles in the same position, and in a similar manner to that adopted for the removal of the appendix according to M'Burney's plan. The portion of diverticulum thus removed measured four and three-quarter inches in length, and originated about twenty inches above the ileocæcal junction.

Case III.—A man, aged about forty-five years, seen at Dr. Craig's request for symptoms of acute obstruction. Previous history was indefinite. At any rate he knew his bowels had not acted for ten or eleven days before his admission under Dr. Craig's care. The abdomen was considerably distended. Nothing

Digitized by Google

was discovered by rectal examination, and enemata produced no result. Operation, performed two hours later, revealed the cause of obstruction to be a small cancerous growth, situated in the hepatic flexure of the colon. The patient's condition being pretty good, I was induced to short circuit and leave the removal of the cancerous growth till the patient should have recovered from the effects of the obstruction. The ileum was cut across close to the cæcum, the distal opening was closed, and the proximal end was implanted into the transverse colon by means of a Hildebrand's modification of the Murphy's button. The bowels began to act while the patient was still upon the operating table, and acted, I may say, almost continuously, until he died from exhaustion some eight hours subsequently.

Case IV.—A woman, aged forty-six years, sent to me from the Coombe Lying-in Hospital. Her bowels had not acted for several days before being sent to the Coombe. Enemata and aperients produced no effect. I discovered her bowels had not acted for fourteen days. The abdomen was generally distended; nothing to account for the condition was discovered on rectal examination. It was considered that the condition I had to deal with was most probably an acute engrafted upon a chronic obstruction. Immediate operation showed the cause of obstruction to be a small malignant stricture, situated about the middle of a long sigmoid flexure. A second opening was made over the upper end of the sigmoid flexure, which was pulled forward and held there by my assistant until the median incision was closed and protected. A Paul's tube was then tied into the loop of sigmoid, and the patient returned to bed. Five days subsequently the abdomen was opened at the junction of the outer and middle thirds of a line drawn from the umbilicus to the anterior superior spine of the ilium on the left side, the muscles being split as in M'Burney's operation for the removal of the appendix. The strictured piece of bowel, with its mesentery, was resected, and the divided ends were united by suturing. Lateral anastomosis, which I should have preferred to do, was impossible owing to the shortness of the mesentery of the distal end, which prevented it being brought sufficiently far out through the wound. The artificial opening above was left untouched. Two weeks later its closure was

Digitized by Google

hastened, and completed by paring the edges and infolding them. Convalescence was uninterrupted, and the woman is still well.

Case V.—A young girl, aged seventeen years, admitted with symptoms of sub-acute intestinal obstruction. The abdomen was a good deal distended, but an enema produced a slight evacuation, which was accompanied by the escape of much flatus. Until three months before this her health had been good, and the bowels acted daily. During the past three months constipation frequently alternated with diarrhœa. For five days before admission into hospital the bowels had not acted. During this time, and for several weeks previously, she suffered much from colic. She vomited twice before admission. Enemata, followed by the cautious administration of salines by mouth within a few days, completely evacuated the intestines and relieved the distention. Dr. Craig, who saw the girl with me at this time, agreed with my diagnosis of a chronic obstruction, most probably of tubercular origin. One coil of distended and thickened intestine could be felt contracting under the hand placed over the left iliac fossa. The abdomen was opened a couple of days later, and the cause of obstruction was found to be situated in the cæcum and ascending colon, the involvment of which produced but a moderate-sized tumour. The ileum was cut across close to its cæcal junction, and its proximal end closed. The transverse colon was dealt with in a similar manner, and the cæcum, ascending colon, and hepatic flexure were completely excised. Lateral anastomosis was effected between the lower end of the ileum and the transverse colon. Microscopic examination proved the growth to be a typical columnar celled cancer. It was thought at the time of operation the condition was most likely to be a form of hyperplastic tuberculosis, which is not infrequently found in this region, but the microscopic examination left no doubt as to the nature of the condition. The case, therefore, is one of considerable interest on account of the youth of the patient, who was at school up to the day before her admission into hospital.

Case VI.—A young woman, aged twenty-eight years, sent to the hospital by Sir William Smyly. Complete obstruction

Digitized by Google

had existed for fifteen or sixteen days. Cause of obstruction was found to be an irremovable mass of rectal cancer. The abdomen was enormously distended—in fact I have never seen such meteorism as in this case; it seemed as if the slightest sudden movement would cause the abdominal walls to give way. A left inguinal colostomy was performed immediately, according to Senn's modification of Maydl's method. The bowel was opened at once, and a Paul's tube tied into the opening. A month subsequently the patient left the hospital feeling stronger and comfortable, and she still remains in much the same condition, though it is over eight months since the operation was done. The rectal growth seems to have remained pretty much as it was when she was admitted into hospital.

It may be noticed that I made no mention of having attempted reduction of the intussusception by means of the injection of oil or water. It is a procedure which I have never tried and to which I have no intention of ever resorting. Clubbe, in a personal experience of 138 cases of intussusception in children, makes it his invariable rule to try the effect of injection, but he is compelled to state that he only finds it effectual in 10 per cent. of the cases. The objections to this procedure are—the risk of rupturing the delicate colon by pressure of the injected fluid, the uncertainty until several hours subsequently as to whether the intussusception has been completely reduced, while there is the knowledge that the odds are 9 to 1 against reduction.

On the other hand, immediate operation saves time—a factor of immense importance in such cases. By operation there is little or no risk of rupturing the intestine, any slight rent in the serous coat can be seen and repaired immediately, while the operator, of course, is absolutely certain about reduction. The risk of peritonitis following a laparotomy at present may be very largely discounted, and the added shock of the operation, if the

Digitized by Google

infant is properly anæsthetised and the operation not unduly prolonged, is not very great. The risk of the anæsthetic is the same both for hydrostatic pressure and for operation.

On the whole, it seems to me a misfortune that injection has ever been effectual in reducing any case of intussusception, as it most certainly leads to many deaths through causing delay. Immediate operation by a competent operator will unquestionably be attended by the best results, and we should always endeavour to work on the principle of "the greatest good to the greatest number." I am not aware of any acute abdominal condition more easy, nor, indeed, so easy of recognition as acute intussusception, and personally I fail to see any excuse for failure to detect the trouble within, at any rate, twelve hours after its onset. The mortality stands at well over 30 per cent. Recently, however, some surgeons have reported cases operated upon by them showing a mortality of less than 20 per cent. This simply indicates what can be done and what may be expected by early recognition and early operative interference.

Many men, however, have a certain amount of reluctance to publish cases unless their statistics are very favourable, while some surgeons only record successful cases, or, at any rate, never seem to have a fatal case so far as their reports show. For these reasons I am convinced the mortality of intussusception all round is considerably higher than text-books would have us believe. My own feeling is that if every case of intussusception was recognised and operated upon within twelve hours of its occurrence the mortality would not exceed 10 per cent., and most probably would be considerably less. A competent operator will not take longer to complete the operation in early cases than from ten to fifteen minutes,

Digitized by Google

and my experience of young children is that they bear operations relatively as well as adults.

With respect to the four cases in this series due to bands, I have little to say beyond the fact that, apart from intussusception, cases of obstruction due to strangulation by bands are recognised as a rule earlier than any others, because the symptoms are generally urgent from the start, and demand immediate attention—a practitioner being, therefore, requisitioned within a very short time.

The last five cases are examples of the most serious form of obstruction one can meet with, especially when acute symptoms have supervened. In a case such as the last I have detailed here, in which acute obstruction has supervened upon cancer of the rectum, there is nothing one can do but colostomy to save the patient's life.

In other cases in which acute symptoms are present, and in which the abdomen has been opened, our subsequent course will depend less or more upon the condition found. In a case of irremovable cancer found in the sigmoid flexure, for example, a permanent colostomy higher up should be performed, but, if the irremovable mass occupies the cæcum, ascending colon, hepatic flexure, or right half of the transverse colon a permanent colostomy or enterostomy would be attended with such suffering and misery, on account of the irritating nature of the fluid discharges, that death would be a relief to the patient. Under such circumstances one must decide whether to perform an immediate short circuiting operation or temporarily drain the intestine and perform the short circuiting at a later date, closing the temporary drainage opening at the same time. Which of these procedures should be carried out will depend entirely upon the patient's condition and upon the judgment of the individual operator.

Digitized by Google

Personally, I should now never perform an immediate short circuiting in any really acute case, but would employ temporary drainage. The less one does in these acute cases, provided the intestine is drained, the better. In sub-acute or chronic cases due to irremovable cancer, if possible, I should always perform short circuiting in preference to colostomy. Of course, the site of the cancer will largely determine the procedure that should be carried out, it being borne in mind that a permanent artificial anus is often a most distressing condition. In an acute case, if removable cancer is found, one of two procedures may be adopted—

1st. As Case IX. in my series (or Case IV. just recorded) illustrates, one may perform temporary drainage above the site of obstruction, and at a later date open the abdomen, remove the cancer and perform immediate anastomosis. The temporary drainage opening may be closed at the same time or later as the operator thinks fit. Sometimes it closes spontaneously after the continuity of the intestinal canal has been re-established.

2nd. One may make a fresh opening over the site of the cancer, draw it without the opening, and let it be held there by an assistant until the central wound has been closed and protected. Then between clamps the cancerous portion, with its attached mesentery, should be freely excised, after which Paul's tubes should be tied into each of the divided ends of the intestine. One or two sutures may be applied so as to approximate their mesenteric borders, and thus facilitate subsequent closure of the open ends. The great advantage of this procedure is that if any considerable time must elapse before the secondary operation could be undertaken there is no risk of further spread of the cancer locally or of its general dissemination during the interval. I know of one case in which

Digitized by Google

temporary drainage was established in a case of cancer of the upper end of the sigmoid flexure, which at the time was removable, but on reopening the abdomen some four or five weeks later, with the object of removing the cancer, the surgeon found it impossible, on account of its rapid spread in the interval, to do anything further than short circuiting, so as to remove the inconvenience of a permanent artificial anus. In a case of simple stricture with acute symptoms, temporary drainage, followed at any time subsequently by resection of the stricture, and immediate anastomosis is the proper course to pursue.

In chronic cases of obstruction the operator should get the intestinal tract evacuated as freely as possible; he should open the abdomen, remove the cause of obstruction, and re-establish the continuity of the intestinal tract at once. In performing short circuiting he should always cut across the upper loop and close the distal end. He can then decide for himself whether to implant the proximal end, into the side of the bowel below, or whether he should close the proximal end also and perform lateral anastomosis between the two segments. This latter procedure is the one I prefer myself.

So far as the treatment of primarily acute cases of obstruction is concerned I am in the habit of describing this as differing according to the stage of the disease into which the patient has passed, and describe three stages, the division between which is more or less arbitrary.

The first stage is that in which the patient is seen early, his general condition is good, and there is little or no distension.

The second stage is that in which the case is not seen till later; the general condition, however, is good, but the abdomen is considerably distended.

The third stage is that in which the case is seen very

Digitized by Google

late, the general condition is bad, the pulse is feeble and perhaps intermittent, the abdomen enormously distended, and the patient profoundly poisoned by toxic absorption from his intestines.

In the first stage the stomach is washed out, a general anæsthetic is administered, and the abdomen is freely opened; the cause of obstruction is sought out and removed, after which the wound is closed by suturing in layers. The stomach is again washed out before the patient is returned to bed. It is as important to wash out the stomach after as it is before operation, if, indeed, it is not more so.

In stage two the stomach is washed out, a general anæsthetic is administered, and the abdomen is freely opened, the cause of obstruction is searched for and removed as before, then the distended intestines are evacuated of their septic contents as well as possible. The opening or openings into the intestines being carefully closed and washed with saline solution, the intestines are returned into the abdomen, and the wounds closed. The stomach is thoroughly washed out again before the patient is removed to bed.

In stage three the patient is not fit for any general anæsthetic. The stomach is washed out, and after the injection of a little eucaïn or cocaïn and adrenalin into the subcutaneous tissue in the middle line below the umbilicus a small incision is made into the abdomen—not much larger than will readily admit the index finger. One finger is introduced and swept round the inside of the opening in the hope that it may encounter the cause of obstruction, which may then be removed. In any case a congested and distended loop is pulled forward, and, being clamped by the assistant, it is opened and a Paul's tube introduced and tied into it. A little gauze is packed

Digitized by Google

round the gut and wound. No sutures are used, and the procedure is carried out as the patient lies in bed.

In indicating the line of treatment to be carried out in the second stage I said that the intestine is evacuated of its contents as well as possible subsequent to the removal of the cause of obstruction. This evacuation of the distended intestines of their septic contents is one of the most important points in the treatment of these cases, and though we may all agree upon the general principle of evacuating the intestinal contents we must, I fear, admit that the process is one about which it is much easier to write or speak than to accomplish satisfactorily. Simple puncture evacuates but a coil or two at most. Mutiple punctures will unquestionably be more satisfactory but take up more time—a very important factor so far as subsequent results are concerned, while the risk of infection is increased in proportion to the number of openings.

Opening a coil and passing a soft rubber tube up the lumen of the intestine—a procedure recommended by Mr. Watson Cheyne—is not satisfactory; at least it has not been so in my hands. Then there is Moynihan's method of passing a glass tube up the lumen of the opened intestine until its outer end reaches the margins of the wound in the bowel. The tube and gut are then seized by an assistant and held firmly so that no leakage occurs by the side of the tube. The surgeon then gently pulls the intestine on to the tube, and thereby empties the bowel a little higher up. Gradually more and more of the bowel is pulled on to the tube until it can take no more. Moynihan says it will thus be found that upon a tube six inches in length six feet of bowel can easily be held. Above the highest point reached by the tube the contents of the bowel are milked down.

Lastly, there is the method recommended by me some years ago of washing out the entire distended intestine

Digitized by Google

by introducing the nozzle of an irrigating tube into an opening made into the intestine high up—say the upper part of the jejunum—and allowing a stream of warm saline solution to flow into the intestine, and thus irrigate the whole length of intestine between that opening and a second opening made some inches above the site of obstruction. This procedure has the great advantage of washing out almost all the toxic contents of the distended intestines and leaving little to be absorbed except saline solution, but it unquestionably takes time, though not anything like so long as might be expected. On the whole, for bad cases, in which time is an important factor, and in which success depends largely upon rapidity of operation, I think the plan suggested by Moynihan is the best.

The general mortality of intestinal obstruction is at least 40 per cent., and yet this disgraceful state of things must be very largely attributed to the pernicious habit of meddlesome medication and delay until the unfortunate patient is so profoundly poisoned by toxic absorption from his intestine, and exhausted to such an extent by pain and vomiting, that he is quite incapable of withstanding even the simplest surgical procedure.

It is hard to conceive any reasonable excuse for permitting a patient to drift into such a hopeless condition before seeking surgical assistance. In fact, it is nothing short of criminal. Just as "there is a tide in the affairs of men which taken at the flood leads on to fortune," so, it should be remembered, there is a time in the course of these cases within which operative interference will be attended by the most brilliant results. Let this time pass, surgery cannot expect any triumphs, as the days of miracles are past, while the unfortunate sufferer has nothing to hope for, so far as this world is concerned, but death to relieve him of his misery.

Digitized by Google

ABSTRACTS.

SECTION OF SURGERY.

President—Henry R. Swanzy, P.R.C.S.

Sectional Secretary—E. H. Taylor, F.R.C.S.

Friday, November 2, 1906.

The President in the Chair.

Exhibition of Cases and Specimens.

After some introductory remarks by the President there was an exhibition of cases and specimens.

Mr. J. L. Keegan exhibited a patient, aged seventy-eight, upon whom he had performed the operation of suprapubic prostatectomy. He also exhibited a boy, aged seven, whom he had trephined for intracranial abscess. *Résumé* of case:—Boy, aged seven, admitted into Jervis Street Hospital, April 26th, suffering from an extensive scalp wound caused by his having been knocked down by a tram-car. He had not lost consciousness. The wound was treated by the resident staff, and sutured. Two days after this the scalp began to slough, and suppuration established itself in spite of free drainage. On May 13th, nearly three weeks after the accident, his temperature rose to 100°, pulse 115, and he was found in a convulsed condition. The first fit began by twitching of the facial muscles on the side opposite to the wound—viz., the left side; the left hand was contracted; left leg and arm in a clonic condition; patient unconscious. The fit lasted for about ten minutes, passing off, leaving patient pale and weak. Between May 14th and 16th he had three more fits, and had begun to lose power of the left arm and leg. On May 17th he had as many as fourteen seizures. On May 18th the scalp wound was opened, exposing the bone over the Rolandic area; it looked dry and yellow, evidently necrosed. A trephine was applied over this area of bone, and as the instrument worked inwards pus welled up. On removal of the piece of bone a large collection of pus was evacuated; there was no pulsation in the area of brain substance exposed, but it was very tense. The

Digitized by Google

tense dura mater was incised and a trocar passed downwards and inwards into the brain substance. Nothing escaped but a little blood. The cavity between the dura mater and bone was drained by strips of iodoform gauze. Temperature dropped from 102° to 100°, but, as he had two fits during the night, on the following morning more bone was removed with bone forceps, and drainage continued. May 21st—Pulsation visible over affected area; no more fits; temperature 100°. May 21st to 27th—Normal temperature; no fits; patient improved so rapidly that he was allowed out of bed. June 8th—A large graft of skin was taken from the boy's thigh and applied over the raw surface; this took well, and completely covered in the brain substance. Present condition—There has not been any recurrence of the fits, all signs of paralysis in limbs have disappeared, and the brain is covered by a firm skin covering. The intracranial suppuration was evidently produced by a septic osteomyelitis secondary to suppuration in scalp. There was possibly a fissured fracture of the skull, through which the pus travelled, causing the intracranial abscess to form.

The case was discussed by Mr. R. C. B. Maunsell, who alluded to another case of a boy from whose skull a large part of the frontal bone had to be removed on account of severe injury. A large pulsating area remained after the healing process was completed, but no subsequent operation was undertaken, and no harm resulted. He would therefore advise against future intervention in Mr. Keegan's case.

Mr. Robert Woods showed a case of a woman whose throat had been accidentally cut, fifteen months ago, through a motor car colliding with a tram-car. All the tissues from the front of the neck to the vertebral column had been severed by the broken edge of a pane of glass. He had found, on examination, that a cicatricial diaphragm grew horizontally across the pharynx, behind the hyoid bone, shutting off the mouth and pharynx above from connection with the larynx and gullet below. Respiration was carried on through a tube inserted in the thyro-hyoid space, and feeding was possible only by removing the breathing tube and passing an œsophageal tube through the opening. A small opening, large enough to admit a fine probe, was found to exist in the centre of this diaphragm. The problem to be solved was

Digitized by Google

how to enable the woman to speak so that she might carry on her occupation as typewriter. Mr. Woods dilated the opening by a series of bougies till its diameter was sufficiently great to hold a tube through which she could breathe comfortably. This could not be put in without making some provision for the evacuation of the saliva which was constantly trickling into her pharynx, and which, before she came under his care, lay in a pool over the pharyngeal diaphragm. Mr. Woods showed an apparatus by which he overcame these difficulties, and which consisted in a double tube, bent in the middle, nearly to a right angle, so that it could be inserted through the thyro-hyoid opening and then upwards through the cicatricial diaphragm. The patient breathed through the large tube, while the smaller one was used for the purpose of sucking away the saliva by a suction apparatus attached to the patient's belt. The apparatus was found to work quite satisfactorily; the patient could talk, breathe and sleep very well, and was not in the least troubled by saliva trickling into her larynx.

The case was discussed by Sir Arthur Chance and Sir Kendal Franks, who was present as a visitor.

Mr. R. A. Stoney exhibited a case of mal-united supra-malleolar fracture after operation. *Résumé* of case:—Man, aged forty, admitted to hospital last Christmas. He was thrown off a horse ten months previously, and sustained a supra-malleolar fracture of both bones of the right leg. The bones had united in bad position, with outward displacement of the foot, causing great pain when the patient walked. At the operation callus was cut through, and the bones refractured. The foot was then brought into position and the tibia wired. Patient returned a month ago complaining of pain on pressure on the inner side of the leg above the ankle. This was found to be due to the wire, which was immediately under the skin. After removal of this the patient was able to walk perfectly without pain.

Mr. Stoney also exhibited a cancerous growth of the rectum removed from a man aged sixty. It formed a large cauliflower-like mass, involving about three inches of the posterior wall of the rectum, and invading the region of the sphincters below. It was removed by the sacral route.

Mr. Haughton, in discussing the first case, inquired of what

Digitized by Google

material the wire consisted and why it caused trouble in Mr. Stoney's case? Great care was necessary in the sterilisation of wire employed for suturing bone, and it was his practice to keep it in the sterilising apparatus until required.

Mr. T. E. Gordon alluded to a similar case in which he had employed silver wire for suturing purposes. Subsequently it pressed against the skin, and had to be removed, but it was perfectly aseptic.

Mr. Jameson Johnston showed a youth, aged eighteen, who stated that he first noticed something wrong with his right hip about nine months ago, and which has been gradually getting worse. There never has been any pain in the hip, but the patient complains of pain in the inner side of the thigh and knee. At present there is some wasting of the thigh, the gluteal fold and trochanteric fossa are well marked; the great trochanter is displaced upwards at least two inches. There is some eversion and adduction; the thigh can be fully extended and almost completely flexed; adduction can be increased but abduction is impossible. These passive movements cause practically no pain. Skiagram shows a bending of the neck of the femur and the top of the great trochanter almost on a level with the acetabulum. Mr. Johnston considered the case to be one of coxa vara adolescentium.

Mr. Maunsell inquired if Mr. Johnston considered coxa vara as an entity in itself. It seemed to him either to result from tuberculous disease or rickets. It should not be regarded as a special disease.

Mr. Edward Taylor described a case under his care in Sir Patrick Dun's Hospital which presented some features very similar to Mr. Johnston's. It was evidently tuberculous in nature. He had been very much interested in the skiagram of the hip-joint exhibited by Mr. Johnston. It gave him the impression that the head of the femur was partially dislocated.

Mr. Haughton also discussed the case, and expressed the opinion that the head of the femur was partially dislocated upwards. Assuming this to be the case, the question arose, was the condition really coxa vara or erosion of the acetabulum as occurred in tuberculous disease.

Dr. Edward J. Watson considered the hip condition the result of erosion of the acetabulum.

Digitized by Google

Mr. Jameson Johnston, in reply, stated that he merely employed the term coxa vara to signify a deformity. He found it difficult to associate tuberculosis with the case, as the boy had never had pain in the hip-joint.

Mr. Haughton showed two patients in both of whom both femora had been fractured simultaneously. The first, a boy aged seven years, a year ago was pushed against a passing lorry, when both legs passed through the spokes of the wheel, and in this position rotated with the wheel. The right femur was broken in upper third (simple), and the left in lower third (compound). In addition, most of the ligaments of the left knee were ruptured, and there were two compound fractures of the left leg (both bones). Further, there was a severely lacerated wound two-thirds round the leg just above the ankle, almost amputating it, but circulation was present in the toes, so the foot was spared. The boy can now run about vigorously, and stand on either leg alone, and has full motion in his knee-joints. (Skiagrams illustrating this case were handed round.) The second case, a man aged sixty-two years, two years ago was wheeling a barrow of heavy stones from a sand-pit, when some tons of loose gravel and sand collapsed on him, crushing him to the ground. There were comminuted fractures of both femora in lower third, compound on left side, and rupture of internal lateral ligament of left knee. This man can now walk about strongly, and bear his full weight on either leg. His right femur was united three months after the accident. Torn muscle between the fragments was diagnosed and verified by operation, when the ends of the bones were chiselled into a concave and convex V, and a three-inch iron screw passed through them. Primary union by bone followed, and he still retains the screw *in situ*. The treatment in the two cases was similar. The limbs were scrubbed for twenty minutes with soap and hot water, followed by ether and alcohol (or biniodide in alcohol), and the compound wounds douched for twenty to thirty minutes with normal saline alone at body temperature, several gallons being used. Silkworm gut drains were then passed into all the wounds, and sterilised dressings applied. An anæsthetic (ether) was given, and plaster of Paris bandages at once applied from the toes to the axillæ, covering both legs and trunk, leaving a suitable cleft for urination and defæcation. During

Digitized by Google

the plaster application, extension was maintained in the boy's case by Dr. Halahan's apparatus, and in the man's by a modification of Professor Kocher's. Mr. Haughton considered the good results obtained in each case to be due, first, to a purely aseptic technique in dealing with internal parts of accidental compound wounds; and secondly, to the excellent fixation afforded by primary plaster of Paris, which methods are his routine practice.

Mr. Edward Taylor, in discussing Mr. Haughton's cases, stated that, while he fully realised the excellent results which had been obtained, and for which Mr. Haughton deserved to be congratulated, it was a question whether the employment of plaster of Paris, as a rule, immediately after the occurrence of fracture was advisable. In Mr. Haughton's hands and in the hands of other hospital surgeons cases so treated had done well, but in the hands of less skilled individuals such treatment might be attended by considerable risk. His own practice was to place fractured limbs in splints for a few days before applying plaster of Paris.

Mr. Lentaigne expressed himself strongly in favour of the application of plaster immediately after the injury, and had made it a practice for years with most satisfactory results.

Mr. Johnston believed it was better to wait for the subsidence of swelling before applying plaster.

Mr. R. C. B. Maunsell exhibited three specimens of gastric carcinoma which had been excised.

Mr. W. Stevenson exhibited a necrosed humerus removed as a sequestrum and a skiagram showing the sequestrum *in situ* before the operation.

Mr. Wheeler showed a loose body removed from the knee-joint.

Mr. W. Taylor exhibited a carcinoma of the cæcum and ascending colon which had been removed.

Friday, November 30, 1906.

The President in the Chair.

Sphincteric Control of the Bladder in Relation to Prostatectomy.

Mr. Arthur Ball read a paper on the above subject (see page 153, *ante*).

Digitized by Google

Limits of Abdominal Operations.

MR. T. E. GORDON read a paper on the above subject (see page 163, *ante*).

Friday, January 11, 1907.

THE PRESIDENT in the Chair.

Some Points in the Treatment of Enlarged Prostate.

MR. L. G. GUNN made a communication on the above subject (see page 170, *ante*).

An Early Case of Leontiasis Ossea.

MR. S. HORACE LAW described a case of the above (see page 176, *ante*).

Friday, February 22, 1907.

THE PRESIDENT in the Chair.

Frontal Sinusitis.

MR. ROBERT H. WOODS exhibited three cases of frontal sinusitis subsequent to operation. He described the clinical history of each case, and gave an account of the operative procedure which he usually carried out for the affection. An incision was carried from within outwards along the line of the eyebrow, and the frontal sinus laid open by means of a small trephine, the aperture being subsequently enlarged by means of gouge forceps. The diseased mucous membrane lining the sinus and its recesses was thoroughly removed with a curette. The entire anterior wall of the sinus was not removed, as was generally recommended in the text-books, in order that the scalp might recede and adhere to the posterior sinus wall, because, in his opinion, this step was unnecessary. Obliteration of the cavity could be brought about after removal of the mucous membrane by the growth of granulation tissue from its bony walls which developed subsequent to the operation. Obliteration of the sinus took place first at the infundibulum, as the granulations fused first at this narrow outlet. Drainage, consequently, could not be carried out by this passage as efficiently as by means of a tube introduced by the wound.

Digitized by Google

Mr. P. Dempsey alluded to the difficulty in the complete eradication of sinus infection. There was nothing easier than to alleviate the discharge, and nothing more difficult than to get it to cease altogether.

Sir Thomas Myles referred to the methods of effecting complete obliteration of cavities in bone, and instanced the difficulty met with in securing the obliteration of a cavity in the head of the tibia—for instance, by granulation tissue.

Exhibits.

Sir Thomas Myles exhibited a man, aged sixty, in whom a large abdominal tumour could be detected. The patient had been admitted to hospital for injury to his hip, and had not been previously aware of the existence of the tumour. The swelling, which was suggestive of splenic enlargement, was quite painless and dull on percussion. Numerous hypotheses had been advanced as to the nature of the tumour, but none seemed satisfactory.

Sir Thomas Myles also exhibited a young man, aged twenty-one, who presented warty growths on both legs. The growths were somewhat painful, and seemed to him to be examples of a rare type of malignant disease, originally described by Hawkins as warty tumours of cicatrices.

Mr. Edward H. Taylor regarded the case as one of warty tuberculosis of the skin, and thought the best form of treatment would be excision, followed by Thiersch grafting.

Mr. Charles Maunsell and Mr. Alexander Blayney also regarded the growths as being of a tuberculous nature.

Mr. C. A. K. Ball exhibited a gangrenous gall-bladder. The patient from whom it was removed had been sent to hospital as a case of typical perforated gastric ulcer. On admission the patient presented symptoms of general peritonitis, originating probably in the appendix. An incision in the right iliac fossa revealed free blood-stained fluid; the appendix was slightly inflamed, and the cæcum was both inflamed and thickened. Another incision was made below the right costal arch, and a tumour resembling a kidney came into view. It proved to be a distended and gangrenous gall-bladder adherent to the colon. A small concretion was found blocking the cystic duct. The gall-bladder was removed, and the upper abdominal region was flushed out.

Digitized by Google

The patient recovered, and her stomach symptoms were relieved. The contents of the gall-bladder were submitted to bacteriological examination, but were found sterile.

MR. ALEXANDER BLAYNEY exhibited a specimen of Meckel's diverticulum which he had resected. The previous history of the patient pointed to severe attacks of pain, which rendered life miserable. Mr. Blayney thought that these attacks were due probably to slight intussusceptions, occurring from time to time, of the diverticulum into the intestine.

MR. CHARLES MAUNSELL alluded to similar cases in his own practice.

SIR THOMAS MYLES exhibited various specimens of surgical interest, including (*a*) a renal tumour developing from a "supra-renal nest"; (*b*) malignant growth of the testis; (*c*) a pathological vermiform appendix; and (*d*) an extracapsular fracture of the neck of the femur.

Friday, March 22.

THE meeting was adjourned.

A Case of Chronic Pancreatitis.

MR. W. I. DE C. WHEELER'S paper on above was taken as read (see page 180, *ante*).

Friday, May 10, 1907.

The PRESIDENT in the Chair.

Treatment of Fractures involving the Shaft of the Femur.

SIR THOMAS MYLES read a paper on above (see page 188, *ante*).

Intestinal Obstruction.

MR. WILLIAM TAYLOR'S paper on above was taken as read (see page 206, *ante*).

Digitized by Google

SECTION OF OBSTETRICS.

A CASE OF LABOUR OBSTRUCTED BY A FIBROID TUMOUR: RED DEGENERATION OF THE TUMOUR.

By R. J. KINKEAD, M.D. Univ. Dub.,
Professor of Obstetrics, Queen's College, Galway;

AND

R. J. ROWLETTE, M.D. Univ. Dub.,
Pathologist to the Rotunda Hospital, Dublin, Lecturer on Pathology, Queen's College, Galway.

[Read in the Section of Obstetrics, December 14, 1906.]

The case—the clinical aspects of which I have the honour of bringing before the Section, its pathological features being dealt with by my colleague, Dr. Rowlette—is interesting as illustrating what may happen during labour when a fibroid tumour is situated in the lower segment of the anterior uterine wall. I say may happen, because the tumour is not invariably extruded before the descending head.

For example, some years ago I was called in consultation to the country to see a multipara who had been many hours in labour, and whom efforts to deliver with the forceps had failed.

She was exhausted; the pelvis was ample, the cervix fully dilated, and the vertex presenting; but the advance of the fœtus was hindered by a large interstitial fibroid tumour in the lower segment of the anterior wall of the uterus; it could be felt over the pubes on palpation, and on introducing the hand, over half its circumference was found projecting into the uterine cavity.

With much difficulty I delivered her by turning a dead child. In this case, although the tumour had been below the head at the commencement of labour, it had not been dislodged by the head but remained *in situ*.

Digitized by Google

In the present case there were no symptoms during pregnancy of the presence of a tumour, consequently this woman, a multipara, although taken in labour of her fourth child at 9 a.m. on the 14th May, 1906, did not send for the medical officer of the dispensary until the next day.

When he saw her he at once directed her removal to the County Galway Hospital.

When she arrived, after a journey of twelve miles in a cart, at 3 p.m., she had been thirty hours in labour. I saw her a quarter of an hour later. Although tired she was in good condition, and the pains were vigorous and frequent.

A tumour could be seen presenting at the vulva.

The first thing to be done was to cleanse the patient and render the parts aseptic. With this object the abdomen, thighs, and vulva were washed with soap and warm water, then with carbolic lotion, and the vagina and vulva thoroughly douched with Condy's Fluid and water. A catheter was then passed and a large quantity of urine drawn off, after which she was again douched.

On vaginal examination the outlet and lower portions of the pelvic cavity were found to be occupied by the tumour, above and behind which was the head, L. O. A. vertex presentation, the os was fully dilated, and retracted over the right side of the head and forehead, but was drawn by the pedicle of the tumour over the left side and occiput, to within a quarter of an inch of middle line of vertex.

The tumour was attached, apparently to the anterior lip and left side of the os, by a thick, short pedicle, between three and four inches wide and over an inch thick.

The question I had to consider was, whether I should remove the tumour first, or try and deliver the woman and then take away the tumour.

As it was very vascular and the pedicle so large I determined to adopt the latter course as being more likely to reduce the risk of hæmorrhage.

Pressure being made on the fundus uteri, I drew down the tumour just clear of the vaginal orifice, and while my colleague, Professor Brereton, held it as far forward as possible against the anterior surface of the vulva, I put on the forceps. The introduction of the right blade was easy, but that of the left blade was difficult, owing to the pedicle keeping the anterior lip and left

Digitized by Google

portion of the os tight against the left of the vertex and close to its middle line: fortunately the patient possessed a roomy pelvis and a yielding perineum, as extrusion of the head was barred by the tumour, and I delivered her of a living female child: the placenta was expressed in fifteen minutes and a dose of ergot administered.

The tumour and vulva were again thoroughly irrigated and a thick silk ligature was tied round the pedicle, close to cervix, notwithstanding which blood spouted freely from an artery in the surface of the tumour: I therefore clamped the pedicle, with a broad ligament forceps, and then cut through it with an ecraseur.

The pedicle was so tough that a stout steel wire used snapped when half way through it.

As soon as the tumour was removed the ligature and most of the forceps were drawn up into the uterine cavity, showing that the cervix had been everted, and that the attachment of the tumour was above the os internum: the vulva and vagina were again irrigated and the clamp was left on for two hours.

There was no hæmorrhage—patient progressed satisfactorily for four days, when she complained of headache, and the temperature ran up from 98° to 103.6°: I washed out the uterus with Condy's Fluid and water and gave a dose of castor oil and turpentine, and next morning the temperature was normal.

She was discharged well on the thirteenth day.

Dr. Rowlette's Report.

"The tumour removed by Dr. Kinkead, which I now present, is, as may be seen, somewhat globular in shape, though slightly flattened. Its diameters are four and a half and two and a half inches. It was, when fresh, a dusky red on the surface; and it is enclosed in a very distinct capsule. On section, the tissue was a very deep red in colour, almost like raw beef-steak in appearance, the centre escaping colouration. It was soft and almost pulpy in texture, and freely oozed a fluid resembling caked blood.

"*Microscopically*, the tissue presents the ordinary appearances of a necrosing fibroid in the early stages. The muscle cells have entirely disappeared, and the fibres of fibrous tissue are separated from each other, as if by the effusion of fluid. The nuclei of the tissue stain faintly or not at all. Blood-vessels are plentiful and large, with thick walls. In patches here and there, there is marked infiltration with leucocytes. By this necrosis both

Digitized by Google

central and peripheral parts were equally affected. There are small extravasations of blood, few in number. Organisms were not detected.

"The typical 'beef-steak' appearance of the tumour has earned for this form of necrosis the name of 'red degeneration.' It is difficult to estimate the relative frequency of its occurrence. Noble, from an examination of over two thousand cases of fibroid, finds some form of necrosis present in 4.7 per cent., and in comparatively few of these would red degeneration be present. Fairbairn, on the other hand, found this form present in over 8 per cent. of his own cases of fibroid, and he calculates that it is present in probably 5 per cent. of all cases. In my own experience at the Rotunda Hospital for two years I have not seen a specimen out of some fifty fibroids examined. As to the pathology of the change there is as yet no definite agreement. Fairbairn, who has given the best description of the process, confines himself to destructive criticism.

"The conditions necessary for its occurrence are, I would suggest, a rich blood supply to the tumour, and its sudden cessation. The tumour is always œdematous and pulpy, and the vessels are always well developed. Under such conditions necrosis is unlikely to occur spontaneously, but will occur if some accident suddenly stops the blood supply. In some of the recorded cases the condition has been found in subserous fibroids whose pedicles had become twisted. A case shown to this Section last year by Sir Arthur Macan was a pedunculated tumour with adhesions. In at least half the recorded cases, fourteen out of nineteen of Fairbairn's series, the condition was, as in the present case, associated with pregnancy. It has often been noted that the tissue of a fibro-myoma may, during pregnancy, undergo similar changes to the uterine muscle from which it springs. It becomes, in fact, softer and more vascular.

"The occurrence of labour, with the descent of the head, may cause pressure on the blood supply of the tumour, and necrosis occurs. The blood caked, either as the result of the death of the corpuscles, or by the infusion into the blood of some of the products of decomposition, and diffuse red staining of the tissues occurs. The staining is, as Gibbard pointed out, parallel to what would take place if a small piece of the tumour were immersed in a solution of hæmoglobin.

Digitized by Google

"As bearing out this view of the pathology of the condition, I would advance the following facts:—

"(1) The uniform necrosis of the whole tumour. Other forms of necrosis occur in patches at the points furthest from the blood supply. When the red degeneration does not affect the whole tumour, it is found that the limitation is very definite, whereas in other necrosis it is gradual.

"(2) The comparative absence of red blood corpuscles from the tissues. The corpuscles have died, and given up their pigment.

"(3) The association, already mentioned, of red degeneration with pregnancy, which is liable to cause both rich blood supply and pressure.

"(4) The association, also mentioned, with other causes of definite pressure, such as occurs in a twisted pedicle.

"(5) The greater frequency with which pedunculated fibroids are affected than interstitial.

"General observers have noticed constitutional symptoms in cases of red degeneration. Pain is said to be a common feature. An unhealthy appearance, a yellow complexion, wasting, and gastric disturbances are said to be more frequent than in other cases of fibrous tumour. In the present case apparently none of these symptoms were present. Their presence in most cases is doubtless due to the absorption of the products of decomposition.

"It is not possible to give any account of the probable termination of the condition if untreated. One case of Cullingworth's, in which he found a large cavity filled with bloody fluid and fibrous debris, may have been a late stage of red degeneration. If the part becomes infected by bacteria, sloughing is likely to occur. In most cases, however, it is probable that the pain and constitutional symptoms bring the case under early treatment, and consequently, if we except Cullingworth's case, the later stages have not yet been observed."

Dr. Henry Jellett said the Section was indebted to Professor Kinkead not only for his paper, but because he had given Dr. Rowlette, incidentally, an opportunity of making a very important contribution to the pathology of an obscure condition. If the staining in the case was identical with the staining that would

Digitized by Google

be brought about by the breaking down of the red corpuscles in the blood, by finding a cause for such a breaking down, some explanation would be found for the condition. On a former occasion he had suggested that there was possibly some curious bacterial action which brought about the change, but, with or without a previous bacterial invasion of the tumour, some ferment might be formed in the tumour that would lead to breaking down of the corpuscles.

Dr. Hastings Tweedy congratulated Professor Kinkead on the brilliant way in which he had dealt with the case, and brought it to a successful delivery, notwithstanding the immense difficulties in his way.

Dr. Ashe, Dr. FitzGibbon and the President also spoke.

Dr. Rowlette, in reply, said the term degeneration as applied to the condition was a bad one; it was not a degeneration, but a necrosis. In none of Fairbairn's cases was any bacterial infection found. If bacteria gained access to the degenerated fibroid it was likely to be quite different from the simple necrosis in the case before them.

Digitized by Google

A CONTRIBUTION TO THE TECHNIQUE OF OPERATIONS ON THE UTERINE APPENDAGES.

By HENRY JELLETT, M.D., F.R.C.P.I.;
Gynæcologist and Obstetrical Physician to Dr. Steevens' Hospital, Dublin.

[Read in the Section of Obstetrics, February 1, 1907.]

I DESIRE to bring before the Academy a short paper dealing with the technique of operations on the appendages, and with the results of some thirty-two cases on which I have operated in Dr. Steevens' Hospital. I do so principally because it is a subject to which this Section has not devoted much attention of recent years, and so I venture to think it may be of interest to discuss it now, and also because I am anxious to obtain the opinions of the Section on certain methods of procedure which I am in the habit of adopting and on certain principles which I think should govern operative measures in these cases. Further, I desire to combat a belief, which was prevalent some years ago if it is not so still, that operations for suppurative conditions of the appendages are unsatisfactory in their after-results unless the removal of the appendages is associated with the removal of the uterus also.

I had better commence my remarks by stating exactly to what operative procedures I intend to refer. I intend to refer to those operations known as salpingectomy, oöphorectomy, and salpingo-oöphorectomy, and also to plastic operations on the ovaries and tubes. I thus exclude all reference to what is usually termed "ovariotomy"—that is to say, the removal of the ovary for new growths.

So far as possible I will endeavour to avoid giving you a *résumé* of the opinions and practices of others, and confine myself to my own opinions and practices. I shall thus be at once more brief and more open to direct criticism.

Digitized by Google

I need not spend time in describing the various lesions which are present in inflammatory diseases of the appendages. It is sufficient to say that they vary from such conditions as slightly thickened tubes or soft retro-uterine adhesions through every degree of severity up to the very severe cases in which both tubes and ovaries are converted into mere abscess sacs, in which the uterine tissue is also markedly affected, and in which the presence of aggravated intestinal adhesions unite to convert the pelvic contents into an unrecognisable mass of inflamed and inflammatory tissue and pus.

The first practical point in the technique of operation is the choice of the route. There is no use in repeating the often-asked question :—"Is the abdominal or the vaginal route the better?" because it is one which cannot be answered in a positive manner. Neither operation can be adopted as a routine to the exclusion of the other. I have not the smallest doubt in my own mind, as my mind is at present, that the abdominal route is the more satisfactory in all cases so far as exact surgery is concerned, and so far as the after-results are concerned—if there is no acute infection present. If, on the other hand, such infection is present, and is in a form which necessitates immediate operation, then the vaginal route is indicated. As the operative treatment of these latter cases is usually limited to drainage of pus collections I will not discuss them, and will confine myself to the very much larger number of cases in which we have no reason to believe that there is an acute pyogenic infection present. In such cases I unhesitatingly recommend the abdominal route. The technique of abdominal coeliotomy has been so greatly improved, and in consequence the risk of operation has been so greatly diminished, that we are justified in undertaking these operations to an extent which was by no means justifiable in the past. Moreover, by the abdominal route we can, in the large majority of cases, remove the diseased tissues in an

Digitized by Google

exact and surgically correct manner, and, what is equally important, we can spare organs or parts of organs which are necessary to the future welfare of the woman. It is, no doubt, often very tempting to tell a nervous patient that her condition can be cured without the necessity of making an external incision, but is this so? Can we deal with diseased conditions as satisfactorily, can we spare and restore tissues as completely when operating through the vagina as through the abdomen? I do not think that we can, or that we can deal with intestinal adhesions at all. The mere wholesale removal of inflamed appendages is a very small part, and indeed a very unsatisfactory part, of these operations.

It may be said that I am begging the question by speaking of cases "in which we believe that there is no acute pyogenic infection present," inasmuch as it is impossible to recognise such cases with certainty. I admit at once that this is so, but I fear that if we adopt the view, correct as it may be, that all cases are possibly cases of acute infection, we must at the same time either decide to perform a second operation on every patient or give up the idea of permanently curing her. The vaginal operation will, in many cases, save the life of a patient suffering from acute infection, but it will seldom restore her to complete health, or restore to her genital organs their normal function unless it is followed by an abdominal operation. I therefore think that we are justified in operating by the abdominal route in all cases of inflammatory adnexal disease in which we have no reason, from the symptoms or history of the patient, to fear the presence of acute pyogenic infection. I think that the statistics which I will bring before you of my own operations support the view. Out of thirty-two patients, one died as a direct result of the transmission of sepsis from the pelvis to the genital peritoneal cavity, and in this case I deliberately operated by the abdominal route on account of the patient's symptoms, and in spite of the

Digitized by Google

fact that I had reason to suspect the existence of an active infection.

Having decided upon the abdominal route the first step is to expose the pelvic contents as fully as possible. The incision must be of sufficient length. The practice of cramping our procedures for the sake of saving an inch or so is unwise, because it lengthens the operation and entails working in the dark. As soon as the peritoneal cavity is opened, the patient may be placed in Trendelenburg's position. It is inadvisable to place her in this position at an earlier stage, because it tends to make the peritoneum fall away from the deep fascia and to lie at a greater depth in the wound than is convenient. This is particularly the case in patients with well-developed abdominal muscles.

The intestines are next pushed upwards, and the presence or absence of adhesions ascertained. I need not spend time in discussing the management of the latter, save to say that, whenever possible, the complete separation of all intestinal adhesions should precede any attempts to deal with the appendages themselves. This done, and the intestines shut off from the pelvis by sponges, any adhesions between the uterus and the bladder are separated, and the anterior face of the uterus and broad ligaments thus exposed as completely as possible. This procedure as well as all the subsequent steps of the operation are greatly facilitated by catching the fundus with a bullet forceps and drawing it upwards. A firm hold should be taken to prevent the forceps from tearing out, and the latter should be applied at the spot at which the suspension sutures will be subsequently passed through the uterus.

We now are in a position to deal with the appendages themselves. The first step is the separation of adhesions between the appendages and the rectum, the appendages and the uterus, and the appendages and uterus and the remaining

Digitized by Google

peritoneum. I am afraid that I cannot offer any suggestions of value as to the method of doing this. When possible, work as much by vision as by touch. When this is impossible follow the line of least resistance, unless it is obviously leading into a pus sac. Keep round the sides of the pelvis at first, and thence work towards the distal end of the tube. Cut firm adhesions with the scissors, so as to avoid, if possible, rupture of the wall of an abscess sac. Remember that the object in view is to separate the appendages from everything save their normal attachments, in such a manner that it may be possible to draw the appendages into or outside the abdominal incision. There are cases in which this separation is impossible, but I believe that they are few in number. In such cases it may be necessary to commence work, not by separating the adhesions, but by removing the uterus, either by first opening the anterior vaginal fornix or by splitting the uterus mesially from above downwards. I dislike removing the uterus in these cases if it is at all possible to avoid so doing, save in the presence of advanced tubercular infection, and therefore I never adopt these procedures if it is possible to avoid them.

If the appendages can be satisfactorily separated, the next step of the operation consists in carefully examining them to see if there are any parts which can be allowed to remain. Nothing, I believe, has contributed to the discredit which has sometimes attached itself to these operations so much as wholesale removal of both sets of appendages, and, so far as I am at liberty to speak from my own small experience, complete removal is as a rule unnecessary. Perhaps I may make myself clearer if I say what, in my opinion, must and what need not be removed. A tuberculous appendage or uterus must be removed completely. A pyosalpinx must be removed completely, and so must an ovarian abscess or tubo-ovarian abscess. A much-thickened tube which contains pus and

Digitized by Google

whose lumen is obliterated elsewhere than at the fimbriated extremity should be removed, and so should any tube of which the lumen is similarly obliterated. A slightly thickened or œdematous tube in which the lumen is pervious, or obliterated only at the fimbriated extremity, and which contains only a little or no pus, need not be removed unless the history of the case suggests any possibility of recent infection. A large œdematous ovary, an ovary containing blood cysts, or cystic follicles, need not be removed. These are the organs that often fall unnecessary victims because they are associated with a pyosalpinx or other serious tubal lesion. If the pressure to which they have been subjected is relieved, they will return to a more normal condition, and will save the patient from a premature menopause.

It is thus obvious that the procedures which we can adopt in these cases vary from the mere separation of adhesions, and perhaps some plastic operations in simple cases, to complete bi-lateral salpingo-oöphorectomy, with or without an accompanying hysterectomy.

On the subject of plastic operations I should like to say a few words. In suitable cases such procedures are most satisfactory, and occasionally have resulted in future pregnancies. In performing salpingostomy—*i.e.*, the restoration of the tubal abdominal ostium—I usually make an opening into the lumen of the tube, about an inch from its end, and then, introducing the point of the knife through this opening, I split the last inch of the tubal wall. The mucous lining of the tube is then brought into contact with its peritoneal covering by means of a few catgut sutures, and a large ostium is thus left. If this is done I do not think it is necessary to suture the ostium to the ovary, as such a procedure lessens the chance of an ovum finding its way into the tube. In the case of œdematous or cystic ovaries I split the ovary in the usual manner and tear away the cyst walls. The

Digitized by Google

incision is then closed with catgut. In this connection it is worth calling attention to the tendency of such ovaries to bleed after they have been returned to the pelvis, though so long as they were held up there was no bleeding. It is always well to examine them carefully a second time after they have been replaced to see if there is any oozing, and if so to insert the necessary additional sutures.

Salpingectomy is an extremely simple proceeding, and the only precaution necessary is to avoid the escape of any infective material from the uterine end of the tube during division. If the interstitial portion of the tube is thickened or contains pus, it is well to dissect it out of the uterus. Otherwise, I do not place any ligature on the tube itself, and merely tie the vessels beneath it. By so doing the lumen of the tube is preserved, and possibly an ovum may at some future time find its way through it.

I think that the simplest way in which to perform salpingectomy is to apply a long and slender clamp to the broad ligament half an inch or so below the tube, and then, catching the tube in a clip forceps, to cut across the broad ligament above the clamp right up to the uterus. If the stump of the tube is to be left, a suture may then be inserted just below the tubal insertion into the uterus, and in such a manner as to include the terminal branch of the artery where it is leaving the uterus and entering the tube. This suture does not include the tube. The uterus is then drawn well up into the abdominal incision by means of an American forceps, which has previously been applied to the fundus, and the tube is isolated by packing a sponge round it and cut across. The lumen can then be disinfected by passing into it a probe dipped in pure carbolic acid. This done, the long clamp is removed from the broad ligament, and any vessels are caught in clips and tied separately by catgut sutures passed so as to include with them a piece of the broad

Digitized by Google

ligament. By this means puckering or contraction of the broad ligament is avoided. Lastly, if the broad ligament is thick the cut peritoneal edges are brought together with a catgut suture.

If the uterine end of the tube is infected, it is well to extirpate it completely by dissecting it out of the uterus. The resultant cavity in the uterine wall is then closed with catgut sutures. It is a very simple procedure, and effectually prevents the subsequent formation of adhesions between the tubal stump and any part of the peritoneum.

Simple oöphorectomy is performed in a somewhat similar manner. The ovary is caught in a forceps and drawn upwards. Thin clamps are applied to the ovarian ligaments and to the vessels which pass to the ovary through the infundibulo-pelvic ligament. The ovarian ligament is divided, and the ovary is then removed from the back of the broad ligament. The ovarian ligament and any bleeding vessels in the broad ligament are tied separately. Salpingo-oöphorectomy is only a combination of the two procedures, the essential features being first to remove the appendages and then to apply the ligatures, tying each bleeding point separately and avoiding anything like ligature *en masse*.

The final step of the operation, so far as the pelvic organs are concerned, is the performance of ventro-suspension of the uterus. This procedure I always perform as a routine measure in these cases, and I regard it as essential to the future well-being of the patient. If the fundus is left free, with probably some of its ligaments gone, and with certainly their functions impaired, it will fall back and become adherent. If this happens, it is no wonder that the patient's symptoms persist, and that the operator is driven to the conclusion that he should have removed the uterus also.

I may say here that for the past three years I have not washed out the peritoneal cavity after operations on the

Digitized by Google

appendages, neither have I drained a case through the abdominal wall. In the very few cases in which drainage was considered necessary I drained through Douglas' pouch into the vagina by means of iodoform gauze. As I have mentioned, one patient died within thirty-six hours of the operation from acute sepsis, due to *Staphylococcus Aureus*, apparently derived from septic tubes. In this case I had drained Douglas' pouch into the vagina. I do not think that, in the presence of so virulent an infection as this proved, washing out of the abdomen would have altered the result.

There are certain principles which I think apply to all operations on the uterine appendages, and to which I venture to draw your attention :—

(1) Never tie the broad ligament with interlocking sutures or with a so-called Staffordshire knot. The objections to each of these methods are obvious. In the first place, such methods pull the top of the ligament together and so shorten it, and the contracted ligament in turn tends to drag the uterus backwards. Secondly, they necessitate the use of silk, the objection to which I shall mention in a moment, as it is difficult or impossible to include so great a mass satisfactorily or sufficiently tightly in a catgut ligature. Thirdly, there is always a risk of slipping of ligatures so applied, unless a considerable amount of tissue is left beyond them, and, as this tissue is deprived of blood and is probably bacteria-laden, it may subsequently slough and give rise to the formation of adhesions, or even to general infection.

(2) Never use silk in the presence of inflammation unless it is impossible to avoid doing so. Silk remains permanently, and if infection is present tends to become a permanent depositary of infection, whilst catgut is absorbed.

(3) Never remove more than is necessary, and do not tie the stump of the tube if one is left. The complete removal of the uterine appendages on both sides is sometimes necessary,

Digitized by Google

but more often is unnecessary. The retention of even a portion of the ovary adds very greatly to the future comfort of the patient, and if to this is added even the stump of a patent Fallopian tube, there is present, at any rate, the possibility of a future pregnancy instead of the certainty of sterility.

(4) Always conclude the operation by performing ventro-suspension of the uterus. The reason of this is obvious. If the pelvis, prior to operation, has contained inflammatory masses, when these are removed the uterus is almost certain to fall back, and as its peritoneum is probably roughened it will contract fresh adhesions and remain permanently fixed. Personally I think that the persistence of pain, which is said so often to follow operations on inflamed uterine appendages, is frequently due to neglect of this precaution.

[See Table following.]

This table may be summarised as follows :—Thirty cases in all were operated upon. In ten of these the extent of the lesion was "slight"—that is to say, the inflammatory trouble present was confined to the tubes and ovaries—and there was little involvement of the pelvic peritoneum. In eighteen cases the extent of the lesion was "considerable"—that is to say, the inflammation had spread outside the tubes and ovaries, and had resulted in the formation of dense adhesions. In four cases the extent of the lesion was "very considerable"—that is, either owing to the presence of unusually firm and extensive adhesions, or to involvement of the uterus, or to the presence of some complication, such as myomata. Two patients (Nos. 20 and 26) died. In one case of extensive tuberculosis (No. 3) the immediate result was most unsatisfactory, and the remote result only slightly better. In another case (No. 18) the immediate result was good, but the remote result was unsatisfactory, inasmuch as the patient's

Digitized by Google

pain still continued. It was a case of so-called chronic cortical oöphoritis. In four cases (Nos. 3, 14, 24, 26) I drained Douglas' pouch with gauze into the vagina; in the remaining cases I did not use any form of drain. In four cases a varying degree of infection of the abdominal wound occurred, and two of these were tuberculous cases. It is on account of these cases that I have given up using anything but catgut for buried sutures in the presence of infection. In all the other cases primary union occurred, and in all but the two to which I have referred above the after-results were good—that is to say, the pelvic contents returned to a normal state, the uterus remained in a normal position, and the patient's symptoms disappeared.

In three cases I removed both sets of appendages and the uterus. One of these (No. 3) was on account of very extensive tuberculosis. The second (No. 14) was partly on account of the very extensive nature of the infection which involved the uterus and partly on account of suspected tuberculosis. Microscopical examination did not, however, show any evidence of tuberculous disease, but at the present time I believe the patient is suffering from pulmonary tuberculosis. In the third case (No. 25) a myomatous uterus was associated with advanced tubo-ovarian disease. Not alone were these the only cases in which I found it necessary to remove the uterus, but they were the only cases in which I found it necessary to remove both ovaries. I wish especially to emphasise this point, and to repeat that although in sixteen cases the extent of the lesion was "considerable," and in four cases "very considerable," yet in only three cases was it necessary to remove both ovaries, and in these three it was found necessary to remove the uterus also. In eleven cases I removed one ovary. In five cases I removed both tubes (in addition to the three cases in which both appendages and uterus were removed), in three cases I removed the whole of

Digitized by Google

TABLE—*Showing the Nature of the Operation and the Results*

No.	Name	Age	M or S	Date of Operation	Extent of Lesion	Remarks	Right Tube	Left Tube
1	M. H.	—	—	8/5/04	slight	—	—	—
2	R. B.	—	—	22/9/04	considerable	ruptured tubal pregnancy and hæmatocele	freed	removed
3	Mc C.	22	M	21/11/04	very considerable	tubercular (see p. 250)	removed	removed
4	M. B.	32	M	29/3/05	slight	(see p. 252)	—	—
5	C. J.	31	M	29/3/05	considerable	—	freed	freed
6	N. S.	24	M	29/3/05	slight	—	outer half removed	removed
7	E. W.	34	M	12/4/05	considerable	tubercular	removed	removed
8	E. C.	35	M	10/5/05	considerable	—	ostium restored	removed
9	—L.	24	M	31/5/05	considerable	—	outer half	freed
10	—O'C.	18?	M	7/6/05	considerable	—	ostium restored	ostium restored
11	—B.	30?	M	21/6/06	slight	—	—	—
12	A. C.	29	M	13/9/05	considerable	—	freed	freed
13	A. M.	33	M	13/9/05	slight	—	—	—
14	M. S.	26	M	22/9/05	very considerable	(see p. 252)	removed	removed
15	E. B.	25	M	27/9/05	considerable	—	ostium restored	ostium restored

Digitized by Google

in Thirty-two Cases of Operations on the Appendages.

Right Ovary	Left Ovary	Uterus	Drainage	Immediate Result	Condition when last seen	Date when last seen
resection of cysts	—	ventro-suspension	—	good - -	good - -	15/8/04
freed -	removed	do.	—	good - -	good --	13/6/06
removed	removed	removed	gauze into vagina	very unsatisfactory	better but still unsatisfactory	16/7/06
removed	—	ventro-suspension	—	good - -	good - -	29/3/06 (about)
removed	resected	do.	—	good - -	good - -	25/5/05
—	resected	do.	—	good - -	good - -	24/8/05
resected	removed	do.	—	good - -	good - -	11/9/05
freed -	removed	do.	—	good, save for slight infection of wound with *Staphylococcus Pyogenes Aureus*	good - -	27/8/06
resected	freed -	do.	—	good - -	good - -	21/8/05
resected	resected	do.	—	good - -	good, save for pulmonary trouble probably tuberculous	21/8/05
resected	removed	do.	—	good - -	not seen again	—
freed -	resected	do.	—	good -	good - -	5/10/05
resected	resected	do.	—	good - -	good - -	4/12/06
removed	removed	removed	gauze into vagina	good - -	good save for pulmonary trouble	22/1/06
removed	cystic	ventro-suspension	—	good - -	good - -	15/2/06

Digitized by Google

TABLE—*Showing the Nature of the Operation and the Results*

No.	Name	Age	M or S	Date of Operation	Extent of Lesion	Remarks	Right Tube	Left Tube
16	A. H.	27	M	17/10/05	considerable -	old tubal pregnancy and pyosalpinx (see p. 253)	removed -	removed -
17	—B.	22	M	8/11/05	considerable -	—	removed -	removed -
18	J. C.	27	S	15/11/05	slight -	chronic cortical oöphoritis (see p. 251)	—	—
19	—M.	30	M	21/1/06	slight -	—	—	—
20	—B.	32	M	7/2/06	considerable -	—	ostium restored	ostium restored
21	E. M'C.	31	M	14/3/06	slight -	—	—	—
22	—D.	26	M	21/3/06	considerable -	—	outer half removed	removed -
23	M. F.	24	S	31/3/06	considerable -	tubercular	removed -	—
24	M. M'C.	38	M	11/4/06	considerable -	old hæmatocele	freed -	freed
25	—D.	42	M	30/5/06	very considerable	uterine myomata and salpingo-oöphoritis	removed -	removed
26	A. S.	35	M	29/8/06	very considerable	(see p. 248)	removed -	—
27	—M.	40	S	24/10/06	slight -	—	freed -	freed
28	—P.	27	M	5/12/06	considerable -	—	ostium restored	removed
29	L. D.	23	M	12/12/06	considerable -	tubercular (see p. 251)	removed -	removed
30	M. M.	29?	S?	14/12/06	considerable -	—	removed -	removed
31	—F.	36	M	23/1/07	considerable -	—	freed -	freed
32	—B.	26	M	30/1/07	slight -	—	—	—

Digitized by Google

in Thirty-two Cases of Operations on the Appendages—Continued.

ght Ovary	Left Ovary	Uterus	Drainage	Immediate Result	Condition when last seen	Date when last seen
moved	resected	ventro-suspension	—	good - -	good - -	4/12/06
sected	removed	do.	—	good - -	good - -	2/8/06
sected	resected	do.	—	good - -	unsatisfactory, pain continued	17/7/06
sected	resected	do.	—	good - -	good - -	23/4/06
sected	resected	do.	—	death (see p. 248)	—	—
—	resected	do.	—	good - -	good - -	10/1/07
—	removed	do.	—	good, save for infection of abdominal wall	good - -	10/12/06
—	removed	do.	—	good, save for infection of abdominal wall	good - -	10/1/07
ed -	freed -	do.	gauze into vagina	good - -	good - -	3/5/06
moved	removed	removed	—	good - -	good - -	29/10/06
—	resected	ventro-suspension	gauze into vagina	death -	—	—
ed -	freed -	do.	—	good - -	good -	15/11/06
ected	removed	do.	—	good -	—	—
ed -	freed -	do.	—	good - -	(see p. 251) -	—
ed -	freed -	do.	—	good - -	good - -	6/3/07
ected	freed -	do.	—	good - -	- — -	—
ected	resected	do.	—	good - -	good - -	28/2/07

Digitized by Google

one tube and half the other, and in five cases I removed one tube alone. In five cases I made a new ostium in either one tube or both tubes, and in nineteen cases I resected one ovary or both ovaries.

FATAL CASES.

No. 20. Mrs. B., aged thirty-two, married twelve years, no children, had suffered from pain in back, severe dysmenorrhœa and intense vaginal congestion and irritation for a number of years. On vaginal examination the uterus was found to be enlarged, retroverted and fixed. On February 7th I opened the abdomen, and found the uterus adherent to the rectum by soft adhesions, the tubes were also adherent, their fimbriæ obliterated, and their abdominal ostia closed. I broke down the adhesions, opened the tubal ostia, excised some small cysts in the ovaries, and, having sutured the incisions, performed ventro-suspension, and closed the abdomen. An hour after the operation the patient became collapsed, but subsequently rallied a little. Two hours later she again became collapsed, her pulse was imperceptible, and her temperature 96° F. I made a diagnosis of internal hæmorrhage, and re-opened the abdomen. I found clots to the extent of about a pint or a pint and a half, due to bleeding from the incisions in the ovaries. I sutured the latter again, and stopped the bleeding. I then poured saline solution into the peritoneal cavity, and closed the abdomen. The patient's condition was then very serious, though not hopeless. Saline infusions into the breasts and saline enemata were administered, and she rallied somewhat. She, however, became semi-delirious and very violent. Small doses of morphia were given, but she again became collapsed towards morning, and died at 8 a.m., nearly sixteen hours after the second operation.

At the *post-mortem* examination the abdomen was found to contain a quantity of dark-coloured fluid, composed of the saline solution of the night before. There had been no further hæmorrhage. The cause of death was probably to be found in the effect produced by the comparatively slight amount of hæmorrhage on a not very strong heart.

No. 26. Mrs. S., aged thirty-five, married ten years, two children and two abortions, was admitted to the hospital on June 7, 1906. She said that she had had a miscarriage four

Digitized by Google

days previously, and was suffering from severe pain and diarrhœa. On examination the uterus was found to be retroverted and adherent, and Douglas' pouch was occupied by a soft swelling, formed by the uterine appendages. The patient's pulse was fast and her temperature high, and she was obviously suffering from septic poisoning. She was kept in bed and suitably treated until her temperature fell to normal, when she was sent home, with directions to return in some months. She returned again at the end of August complaining of very severe pain, and expressing a desire to have something done for it. Her temperature was normal, but her abdomen was swollen owing to partial intestinal obstruction. On account of her condition and her desire for operation, I consented to operate. On opening the abdomen three distinct coils of intestines were found so densely adherent to the uterus and appendages that on separating them the outer coat of the intestine was torn in three places and had to be sutured. The rectum was then found to be densely adherent to the back of the uterus, its mesentery being so much thickened as to suggest malignant disease. After separating the adhesions the right tube was removed, as well as a small cyst from the left ovary. The lumen of the left tube was found to be patent, and so the tube was left. There was a very small amount of pus encysted amongst the adhesions. As there was considerable bleeding from the back of the rectum, and as this could not be completely checked, an opening was made into the posterior fornix, and Douglas' pouch was plugged with iodoform gauze, the end of which was brought down into the vagina. Ventro-suspension of the uterus was done, and the abdomen was closed. The next morning the patient's pulse was extremely rapid, and gradually rose to nearly 180. She died the same night with all the symptoms of a most acute septic poisoning.

At the *post-mortem* examination pus was just commencing to form in the peritoneal cavity, which also contained some dark coloured fluid. Cultures of the pus were made, with the result that colonies of the *Staphylococcus Pyogenes Aureus* grew freely. I have little doubt that the infection was derived from the appendages, and was not introduced from without during the operation.

Digitized by Google

It is undoubtedly technically wrong to operate on such cases through the abdomen at so short an interval as three months after the original infection, but looking at the case as it was, it is difficult to see what else could have been done. The patient's condition called for some relief, and a vaginal operation would have done little to relieve the intestinal adhesions which were the chief cause of her trouble.

UNSATISFACTORY CASES

No. 3. Mrs. M'C. was admitted to hospital on October 15, 1904. She had been confined on the preceding 31st of July, and since then had complained of severe pain in the iliac region and profuse discharge. She was very much emaciated, and was becoming gradually worse. On examination Douglas' pouch was found to be occupied by an elastic swelling corresponding to the appendages. On account of the short time which had elapsed since infection, I decided to operate by the vagina. On opening into Douglas' pouch it was found to be occupied by a mass of friable tissue which tore away and could not be drawn down. Accordingly a piece was removed for examination, and the cavity was plugged. On examination of the removed portion the pathologist reported it to be tuberculous. Ten days later I opened the abdomen and found extensive tuberculous peritonitis and advanced disease of the appendages. I removed the latter and the uterus. There was a very foul-smelling abscess between the appendages. Subsequently a recto-vaginal fistula formed, due to injury of the much-softened rectal wall. In addition to this, infection of the wound occurred, and of the peritoneal cavity in the neighbourhood of the incision. As the patient's condition was gradually becoming worse I had to open the abdomen again. The tuberculous peritonitis was then found greatly to have extended, and in one place it had so softened the intestinal wall that in separating an adhesion I pushed my finger through the wall. I tried to suture the tear, but the tissue was so rotten that it would not hold the stitch, consequently a second fistula formed here. The patient's condition, however, gradually improved, and she was able to be sent to a convalescent home some three months after the first operation. I have seen the patient at intervals since then, the

Digitized by Google

last time being on July 16, 1906. Her general condition was then slightly better, and she had put on flesh. The vaginal fistula was, I think, healed, and the abdominal fistula was still open. It, however, did not cause her much trouble. I tried to persuade her to come regularly to the hospital to have injections of tuberculin, but although she said she would come she has not done so, nor have I seen her since. . . .

No. 18. This case was one of chronic cortical oöphoritis. There were no adhesions, the capsule of the ovaries was thickened, and they contained numbers of small cysts. These last were punctured and scraped out. The patient made an uneventful recovery, but the pain from which she had previously suffered for a considerable time did not get any better.

CASES OF SPECIAL INTEREST.

No. 29. L. D., aged twenty-three, married, was admitted to the hospital under my colleague, Dr. Kirkpatrick, on account of renal disease dating from her past pregnancy three months before. Her legs and other parts of the body were very œdematous, the urine was loaded with albumen, and she had marks of extensive tuberculous glands in her neck. In addition she complained of very severe pain in the pelvis. On examination I found the pelvis completely filled with a soft mass representing thickened appendages. As I thought the case was certainly tuberculous, and as the patient complained of very severe and continuous pain, I decided to operate with a faint hope that I might find that her pelvic condition had something to do with her renal condition by causing pressure on the uterus. On opening the abdomen the thickened tubes and some adherent intestines filled Douglas' pouch, to which they were adherent. I freed the adhesions and removed two thickened tubes which contained pus; the ovaries were apparently healthy, and so I did not interfere with them. On subsequent microscopical examination the tubes were found to be tuberculous. The patient made an excellent recovery from the operation, and her pain entirely disappeared. Her renal condition, however, got no better, and at the present time she is passing very little urine, which is loaded with albumen and contains tube casts, and she is suffering from general anasarca. I should have mentioned that at the operation I found a row of calcified mesenteric

Digitized by Google

glands situated in the mesentery and forming a regular chain so far as I could ascertain along the entire length of her intestine. I am afraid that there may be in the future an autopsy in this case, and I should not be in the least surprised to find that there was pressure exerted by these calcified glands upon the renal vessels.

No. 4. M. B., aged thirty-two (? forty-two), was transferred to my care by my colleague, Mr. Haughton, who had previously operated upon her for ascites and hepatic cirrhosis, performing a Talma-Morrison operation. She complained of irregular and profuse menstruation and pain in the lower part of the abdomen. On examination the uterus was found to be slightly enlarged, and a firm round swelling the size of an orange corresponding to the right ovary was felt. I opened the abdomen on March 29, and found somepelvic adhesions and an ovary enlarged to some four or five times its original size. I removed the ovary, leaving the tube. On proceeding to look for the appendages on the opposite side I found that the only structure representing them was the stump of a Fallopian tube some half an inch in diameter. The end of this stump was adherent to part of the small intestine. There was no trace of an ovary, and the peritoneum of the broad ligament was absent save for a small fold corresponding in length to the tubal stump and adherent to the surrounding structures. The patient said that she had never had a previous operation save that performed by Mr. Haughton, and there was no evidence of any other operation having been performed. I think that the patient's statement was certainly correct, and consequently in this case the removal of the left appendages must, I think, be attributed to the destruction of their blood supply by torsion and their subsequent absorption. (Further notes on this case will be found in the *British Gynæcological Journal* for May, 1906.)

No. 14. M. S., aged twenty-six, married, came to me complaining of pain in the lower part of the abdomen. On examination the uterus was found to be fixed and Douglas' pouch to be occupied by two swellings, each equal in size to a small orange. She had a history of previous septic trouble after labour, and had had a pelvic abscess opened and drained in another hospital. On opening the abdomen I found the pelvis so occupied by inflamed appendages and adhesions, and the uterus so extensively involved,

Digitized by Google

that I had no option but to remove both appendages and uterus. The interesting feature in the case consisted in the presence of a tube which could be seen running from a large intestine into the mass occupying Douglas' pouch. It was some two and a half to three inches in length, and about a quarter of an inch in diameter. At first I assumed that it was the appendix, and, as I could not free it, I ligatured it and cut it across. On subsequent examination, however, it turned out to be a diverticulum from the pelvic colon with which its walls were structurally continuous. It presumably must be considered to have been an unusually placed Meckel's diverticulum. (Further notes of this case will be found in the *British Gynæcological Journal*, May, 1906.)

No. 16. A. H., aged twenty-seven, married, was admitted to the hospital complaining of pain in the lower part of the abdomen and back, too frequent menstruation, and bleeding after coïtus. She had no children, but said that she had had a miscarriage at the eighteenth or twentieth week about eighteen months before. On examination Douglas' pouch was found to be occupied by enlarged appendages, and at one point a hard and irregular mass, about the size of a hazel nut, could be felt. On opening the abdomen I found that both tubes were dilated and contained pus, while the left ovary was cystic. The skeleton of a four months' fœtus projected from the ampulla of the right tube. Apparently, the supposed miscarriage was really the termination of an extra-uterine pregnancy, the remains of which had become infected.

Sir A. V. Macan said the paper opened up the whole question of operations on the appendages. The feeling on the Continent was, he said, in favour of the vaginal route as against the abdominal. The question of infection was of great importance. There were four possible infections, and the deciding of which was present was a very important question. Another question was whether it was better to remove the uterus or to hang it up to the abdominal wall. The rule for choice should be—No operation, if possible; next, the least operation possible; and, above all, the retention of function where possible. The possibility of a woman having children in the future had an enormous effect in

Digitized by Google

obviating depression of the mind; and the retention of a sufficiency of ovarian tissue to enable menstruation to continue could not be too highly praised. The feeling abroad in connection with the danger of silk as a focus of infection was that it was impossible to prevent it; hence cat-gut was favoured for everything except the abdominal wall and intestines. The speaker criticised the paper from the point of view of Professor Martin's latest edition, and indicated the latter's method of dealing with cases of infection and tubercular disease.

Dr. Hastings Tweedy said that Dr. Jellett's treatment in the cases he had cited was almost identical with his own, and they were agreed on the point of saving as much as possible. There were some points of detail, however, on which they were not in agreement, but probably they did not make much difference either way. For instance, Dr. Jellett objected to the Staffordshire knot; still it had been used successfully for many years, and he (Dr. Tweedy) considered it a quicker method of tying off the broad ligament than any of the methods suggested, and it was less liable to cause subsequent adhesions. There was not, he thought, any second opinion in regard to the use of silk in an infected case; the burying of it in the midst of septic matter must end in disaster. But it had enormous advantages in other cases. If *fine* silk was used, and was boiled in corrosive sublimate, it was capable of resisting germs for five or six days; and he had absolute proof that silk was absorbed. In regard to the question of drainage, its value lay in the causing of irritation and the exudation of serum that might possibly wash out some of the germs, and do good; but drainage after twenty-four hours was seldom of any use.

Dr. Thomas Neill said that silk, being an animal substance, should be absorbable, but it was necessary that it should be unmixed with vegetable fibre.

The President said he was fully in accord with the value of preserving as much of the organs as they could where there was the least possibility of function continuing afterwards. He had been accustomed to tie the broad ligaments *en masse*, and he shared the view that, however more artistic Dr. Jellett's method might be, he was not sure that it had any great advantage over the other. He had no doubt that silk was absorbable. In operations for the removal of the appendages, where a large extent

Digitized by Google

of raw surface was left on the face of the rectum, he had been content to allow the uterus to fall back, hoping thereby to prevent contact with the intestines; and he thought that in some cases that was better than lifting the uterus above the appendages and leaving a raw surface as a possible source of subsequent adhesions.

Dr. Jellett, in reply, said he knew there was a tendency in favour of the vaginal route, and he brought forward his cases as going a certain way to show that there were no bad results attributable to the abdominal operation. The predominant feature of his series of cases was not so much the accumulation of large quantities of pus in the tubes and ovaries as extensive intestinal adhesions. That being so, he could not have got as good after-results by the vaginal route, nor could he have left the genital organs in as satisfactory a condition as appeared on subsequent examination. He had started with the view that in tubercular cases the entire pelvis should be cleared out; but in view of two of the cases he recorded he could not help thinking that removal of the diseased portions alone was sufficient. Moreover, primary ovarian infection was very rare. He thought that those speakers who advocated ligature of the broad ligament *en masse* must use silk, and there had been a general consensus of opinion that this was inadvisable.

Digitized by Google

PUBIOTOMY, WITH NOTES OF THREE CASES.

By M. J. GIBSON, M.D., B.Ch. Univ. Dub.;
Supernumerary Assistant Master Coombe Hospital.

[Read in the Section of Obstetrics, March 8, 1907.]

It is now a very long time since the idea was first conceived of improving the prognosis for the mother and child in cases of contracted pelvis, and of lessening the number of Cæsarean sections, inductions of premature labour, and perforations of the living child, by an artificial enlargement of the pelvis. In 1655 Courvée demonstrated on the dead subject the method by which such an enlargement could be produced, and one hundred years later Sigault performed a symphysiotomy on the living for the first time. This created great enthusiasm, but a few years were sufficient to abolish the operation for another period of more than one hundred years. Symphysiotomy then came again into vogue, but, as we know, the results were not at all satisfactory, the usual mortality being about 10 per cent., and many of those who recovered being permanently injured.

To Gigli belongs the honour of being the first to propose, as a substitute, an incision through the os pubis, by which he considered that the soft parts would be less likely to be damaged, and the union better.

This osteotomy was first performed by Bonardi in Lugano in 1894. Gigli employed a large incision straight down over the bone, and for this reason his pubiotomy or hebotomy was not a very great improvement on symphysiotomy, since the great danger in both lay in this large easily infected incision. All this, however, was altered when Döderlein recognized that pubiotomy could be performed subcutaneously, and his

Digitized by Google

simple and safe modification is really a new operation. The enthusiasm with which the operation is now taken up, the fact that the maternal mortality is only about three per cent. (in spite of the many errors which are sure to make the results of a young operation worse than they should be), and the excellence of the after-results, seem to prove that pubiotomy is one of the greatest discoveries in modern obstetrics. I have had the opportunity of seeing the operation performed twelve times, of performing it three times, and during the time that I acted as *Volontär-Assistent* to Professor Döderlein I not only saw him do the operation several times, but I also had every opportunity of talking it over with him. I can therefore give you the words of the father of the operation, himself, as well as the conclusions I have come to from my own cases.

When is the operation indicated?—When the child is alive it is indicated, in cases of narrow pelvis, when the cervix is fully dilated, and in spite of good contractions and postural treatment the head still moves freely above the brim; or in cases in which from the very beginning the disproportion in size between the head and the pelvis makes it impossible to hope that the head could ever pass through the brim. The operation may be performed in cases of flat pelvis with a conjugata vera not less than 6.75 cm., and in generally contracted pelves not less than 7 cm., but for these very low conjugates the head must not be larger nor harder than normal. For the lesser degrees of contraction its advantages over the performance of Cæsarean section or the induction of premature labour are very great, since good and strong contractions are a power which must always be considered. Through their preparation of the maternal soft parts, and especially by the good moulding of the fœtal head, many a head is driven through a narrow pelvis in cases where we could hardly have believed that such a thing could occur. It is

Digitized by Google

through not considering this fact that so many premature labours are needlessly induced and Cæsarean sections needlessly performed. The operation is also indicated in a normal pelvis when the face presents with the chin posterior, and the child is alive, when all efforts to change the position or the presentation have failed.

Does sepsis of the genital tract contra-indicate the operation? v. Franqué says not, the idea being that the patient will not suffer any more from her sepsis by being operated on than she will do if she is not operated on. The fact, however, remains that nearly all the fatal cases have been septic before operation.

The operation may be performed in several ways, which are simply slight modifications of one another. The following is practically *the method* I learned from Döderlein, and which I adopted in my own cases:—When the woman goes into labour a colpeurynter is placed in the vagina. By this means the bag of membranes is supported and kept from giving way, and if the membranes are already ruptured the liquor amnii is preserved. The bag also dilates the vagina, and it does not prevent the head coming into the brim. When the cervix is fully dilated, the membranes must be ruptured, and if the operation is necessary it may be performed. After the bladder has been carefully emptied, a transverse incision, large enough to admit a finger, is made over the upper edge of the os pubis, between the symphysis and tubercle, usually at the left side. The tissues are divided down to the bone till the finger can easily be inserted behind it. With this finger the tissues are pushed away from the back of the bone, and thus injury to the bladder is prevented. Döderlein's needle is then inserted, with its point very closely applied to the bone, and it is pushed down along the back of the bone about a finger's breadth away from the symphysis, under the guidance of the finger in the vagina. It is necessary to hug the bone closely, and

Digitized by Google

when the needle point comes out at the edge of the bone to get an assistant to pull the clitoris, labia, &c., well over to the other side, so that the point comes up to the skin well out in the greater labium. A very small incision over the point sets it free. Gigli's saw is then attached and drawn back and out through the incision above. During this time the patient has been lying in the cross-bed position, with her sacrum resting on the edge of the bed. Now, when the saw is in position, and before it is used, the legs of the patient are brought rather closely together, and an assistant pushes on either side of the pelvis to keep the ends of the bone from springing suddenly apart when divided. With the saw, stretched fully in a large arc of a circle, six or ten movements are usually sufficient to divide the bone, but before the saw is removed it is always better to make sure that the ends of the bone separate easily. After symphysiotomy the pelvis separates so suddenly and so widely, unless it is very carefully controlled, that there is danger of injury to the bladder and to the sacro-iliac articulations. During pubiotomy such a sudden separation never occurs. In fact, owing to the protection of the undivided soft parts, Sellheim states that in order to get as much enlargement with pubiotomy as with symphysiotomy three times as much force is required to separate the ends of the bone as to separate the symphysis. The advantages of this are obvious. Still it is better to get an assistant to press on each side of the pelvis, or if there are no assistants a piece of rubber douche-tubing is fastened round the pelvis. Now the bone is sawn through, and, as Döderlein says, the ancient belief that the pelvis separates into two portions during parturition and comes together again has become a fact. After the bone is cut there is bleeding from the wound. This is sometimes rather profuse. It comes from the corpus cavernosum of the clitoris and the plexus pubovesicalis. It can be stopped by compression,

Digitized by Google

and it cannot be of any danger, because if compression fails to stop it, its origin can be sought for and controlled. This, however, is scarcely ever required. The patient's legs are now allowed to hang in Walcher's position, and when they are well separated, the ends of the bone separate easily, and the head can very often be pushed down through the brim. When the ends of the bone separate to a distance of 3 cm. it increases the true conjugate by 1 cm.; when they separate to a distance of 6 cm. the true conjugate is increased by nearly 2 cm. The patient should not be delivered unless it is absolutely indicated. An injection of morphia when she comes from under the anæsthetic, and a rubber bandage placed around the pelvis, if it is not already there, will add to her comfort. This bandage must only be sufficiently tight to keep the pelvis steady, must not prevent the contractions driving the head through the brim. The patient will generally deliver herself without any very great difficulty, and thus there is the greatest possible protection of the soft parts. If there is any indication to deliver it is best done with the forceps, but the vagina must be incised if it is narrow. The incision must run down deeply along the side wall and into the perineum. If this is done and plenty of room made, and the delivery is carefully performed, lacerations of the vagina communicating with the ends of the bone cannot easily occur. Spontaneous delivery is the ideal, and it is worth waiting for. If we must deliver, we do so, and after delivery, or when we decide to wait for spontaneous delivery, the incision above may be closed with two deep sutures, and the little puncture below with one. After the birth of the placenta the vagina is plugged with gauze, and firm compresses are put over the incisions and the vulva in order to prevent the formation of a hæmatoma (the compresses over the vulva and the vaginal plug may be removed eight hours later, when the patient should empty her

Digitized by Google

bladder). A few strips of adhesive plaster are put around the pelvis and an ordinary binder is applied.

The after-treatment is very simple. The patient lies on her back for twelve days, and in spite of the fact that the Röntgen pictures for several weeks show no bone formation the pelvis is, as a rule, so firmly united on the fourteenth day that the patient may get up, and a couple of days later she should be able to walk without any difficulty.

Spontaneous delivery at the next parturition after pubiotomy has occurred, but generally in those cases the children were smaller than those which originally necessitated the operation. The union is nearly always a bony one. If the operation has to be repeated, it may be performed on the same side or on the other side. Spontaneous delivery after symphysiotomy, as Baisch points out, is also due either to the fact that the child was smaller, or that the union of the symphysis resulted in a flail-like joint, or not uncommonly to a combination of the two.

There is a *complication* to which I must draw special attention, and that is injury to the bladder during the operation. This is due either to the fact that the bladder has not been properly emptied before the operation, or, in rare cases, owing to a previous inflammation, to the bladder being more or less adherent to the posterior surface of the os pubis. In women who have had puerperal sepsis this is to be feared, and the separation of the tissues from the back of the bone with the finger should be performed very carefully. If the needle does enter the bladder wall there is not much harm done. It heals up quickly provided a catheter is tied in.

I will now shortly describe my own cases, but first I must express my gratitude to Dr. Stevens, the Master of the Coombe Hospital, for allowing me to use these notes, and to perform the three operations which I have done. They were done under his supervision and with his help.

Digitized by Google

These three operations were all successful. By successful pubiotomy I mean that both the mother and child survive the operation and do not suffer any permanent injury from it. My first operation was performed on the 16th of August, 1906.

Case I.—M. M., aged thirty-four years, 9-gravida. All her labours had been very tedious. The children had all been very large, and none of them had survived for any length of time. She had had craniotomy performed twice, induction of premature labour twice, and had had forceps applied four times. She had labour induced at her last confinement. The child was delivered with great difficulty, and only lived for ten minutes. At the seventh month she came to the hospital with the object of having labour induced again, but, as she was most anxious to have a living child, I advised her to wait till term. On this occasion the patient is at full term and in labour. A large child presents as first vertex. The head, which is large and hard, moves freely above the brim. The contractions are powerful. The fœtal heart 140, and regular. The pelvis measures—I. S. 22, I. C. 25, I. T. 29; external conjugate 18. The vagina is very capacious. The cervix admits two fingers; the membranes are protruding. Conjugata vera 8 cm. A generally contracted pelvis. A colpeurynter was placed in the vagina. The contractions became frequent and very powerful. After three hours the colpeurynter was removed, and the cervix being now fully dilated the membranes were ruptured. As the disproportion between the large head and the pelvis was so very great, any hope of spontaneous passage of the head through the brim was out of the question, and pubiotomy was therefore performed. The hæmorrhage after the bone was cut was controlled by compression, and when the legs were allowed to hang in Walcher's position, and were well separated, the head was easily pushed down through the brim, the bones separating to a distance of about 7 cm. As the head only required to be lifted over the remains of the perineum, I applied the forceps and extracted the child without difficulty. The child weighed twelve pounds. It cried immediately after birth, and gave us no trouble whatever. The placenta was expressed from the vagina fifteen minutes later. While waiting for it I put two sutures in the upper incision and

Digitized by Google

one underneath. After the vagina had been plugged and the compresses over the wound and vulva applied, a few strips of adhesive plaster were put around the pelvis, and a binder applied. When the legs were close together the ends of the bone touched one another. Neither mother nor child showed any bad symptom afterwards. I allowed the mother to get up, and she walked without difficulty and without pain on the twenty-first day. She and her child went home two days later.

Case II.—L. M., aged thirty-two, was also a 9-gravida. Her second baby had been delivered with forceps, and is still alive; all the others are dead. She had had labour induced three times, craniotomy once, and the forceps applied twice, and there had been a pelvic presentation twice. The patient, who looked very ill, came into hospital after having been fourteen hours in labour, on the 29th of October, 1906. Examination revealed a first vertex, with head free above the brim. Child small. Fœtal heart 160, and very irregular. The pelvis measured 23, 22, 29, 18. The vagina roomy; meconium coming away in large quantities. Os fully dilated. Membranes ruptured. Conjugata vera 7.5 cm. A generally contracted and flat pelvis. Mother's temperature 100° F.; pulse 110; respirations very rapid. Lobar pneumonia. Here we had a combination of child in grave danger, mother's pneumonia, and a generally contracted and flat pelvis, with a conjugata vera of 7.5 cm. Pubiotomy was performed as quickly as possible, and a child weighing 6 lbs. extracted with forceps. There was severe post-partum hæmorrhage, which was stopped by douching and massage. When a catheter was passed blood escaped from the bladder, which had evidently been injured owing to the rapidity with which the operation had to be performed, as the patient nearly died under the anæsthetic. A catheter was tied in, and the urine was quite clear after four days. The patient recovered from her pneumonia, and both she and her child left the hospital on the twenty-fourth day in good health.

Case III,—F. O'D., aged twenty-nine years, 3-gravida. This patient aborted at the end of the third month of her first pregnancy. Her second child had been delivered at full term with forceps. The delivery was very difficult. The child weighed 5¾ lbs. and

Digitized by Google

is still alive. The patient did not walk till she was three years of age. She is healthy, at full term, and in strong labour. The child lies transversely; the head larger than usual, and very hard. Fœtal heart 126, and regular. Pelvis measures 26, 26, 32, 17. Vagina capacious. Os very nearly fully dilated; membranes unruptured. Conjugata vera 7 cm. A rachitic flat pelvis. It was decided, owing to the size of the conjugate and the hardness of the head, to perform pubiotomy. There was very little bleeding from the wound. Internal podalic version was done, and both feet brought down. The patient by this time was having powerful contractions and expelling the child, but the arms had to be delivered, as they were extended, and the head extracted. The child weighed 7½ lbs., and gave no trouble. The patient was up on the seventeenth day, and left the hospital on the twenty-third day without any difficulty in walking.

All three babies were breast-fed. None of the women complained of pain or showed any difference from a normal confinement, except, of course, the second patient, who was suffering from pneumonia. They did not object very much to lying on their backs for twelve days. The pelvis was quite firm in every case. I regretted very much at the time that I could not allow the last two patients to deliver themselves, but by extracting the children very gently no harm was done.

These three women dreaded a Cæsarean section, and absolutely refused such an operation, and yet they had no fear of pubiotomy. This is usually the case, and it ought to continue, since with proper precautions the mortality should be very low. In skilled hands it is an operation which can easily be performed in a private house, but without proper education it cannot yet replace the induction of premature labour in the hands of the general practitioner. The great objection to the induction of premature labour is, of course, the difficulty in rearing the child, and in the present state of affairs, with such a decreasing population, it is our duty to deliver as many live children, and to give them as good a start in life as possible.

Digitized by Google

The danger to the mother after pubiotomy is very little more than that attached to the induction of premature labour. Leopold, for example, has had twenty-three pubiotomies without a death, and Gigli has collected three hundred cases with a maternal mortality of three per cent., and amongst those cases which were aseptic before operation the mortality was nil.

I think there is a great future for this operation, and that it will never share the fate of symphysiotomy, but will always remain for us a means of overcoming the difficulties connected with the lesser degrees of contraction of the pelvis without injury to the mother or child.

Digitized by Google

A CASE IN WHICH DELIVERY WAS ACCOMPLISHED BY PUBIOTOMY.

By E. HASTINGS TWEEDY, F.R.C.P.I.;
Master, Rotunda Hospital.

[Read in the Section of Obstetrics, March 8, 1907.]

The consideration of means for successful delivery in the presence of contracted pelvis has never failed to interest obstetricians, and for this reason I desire to report the following case, the most notable feature of which lies in the method adopted for overcoming obstruction to delivery.

On entering our labour ward on the morning of November 17, 1906, I was informed by our Charge Sister that a primi-gravida, aged twenty-four, had been admitted during the night, that she was not in labour, and that the fœtal head was balloting above the brim.

On palpation I found the woman's condition as follows:—The head lay in the lower uterine segment, and was freely movable, with its left parietal bone over-riding the pubic arch to some extent. During this examination the uterus contracted firmly on two occasions. These contractions were quite painless, and this made me naturally conclude that labour had not begun, notwithstanding the fact of the patient having declared that a mucous show had made its appearance on the previous day.

External measurements gave some clue to the true size of the pelvis. They were as follows:—Inter-spinal, 26 cm.; inter-cristal, 29 cm.; external conjugate, 16½ cm.

Having verified the accuracy of these measurements I requested my Assistant Master to undertake the further investigation of the case. He proceeded to ascertain the correct internal pelvic measurements by means of a Skutch's pelvimeter.

[I may here remark that we possess in this instrument an inexpensive, simple, and exceedingly accurate aid to arriving

Digitized by Google

at the length of the true conjugate as well as of that of the transverse diameter of the pelvis.]

On making a vaginal examination he found the os was dilated to more than three-quarters of its full extent. The membranes ruptured at this time, and the escape of the liquor amnii was accompanied by prolapse of the cord. As a guide to further treatment, it seemed to me now more necessary than ever to determine at least the internal conjugate diameter, and this could not be done without the administration of an anæsthetic. We found the conjugate vera 6.5 cm., or slightly more than two and a half inches. Under such circumstances it was perfectly evident that natural delivery could not take place, nor could the question of forceps be entertained, whilst version gave no hope of delivery save by the birth of a dead child. Operative procedure accordingly narrowed itself down to one of three alternatives—Cæsarean section, symphysiotomy, or hebotomy.

Many objections to the first of these arose in my mind—the patient was already under anæsthetic, with the cord prolapsed, and the preparation for such an operation would have occupied the greater portion of an hour. I had no guarantee that the cord would continue to pulsate for so long a time. The operation would have been rendered difficult and dangerous not only as a result of the prolonged escape of liquor amnii but also because of the continuous anæsthetic. Symphysiotomy did not seem in these respects to offer advantages very much greater, for although my personal experience of it has been entirely favourable it cannot be said to be a simple operation or free from many grave risks.

Much has recently been written as to the ease and freedom from complications attending the sawing through of the pubic bone at one or other side of the symphysis.

The advocates of this operation claim that it will almost entirely supersede symphysiotomy and Cæsarean section. That it can be performed with ease and safety on a patient lying in her ordinary bed, and that, in fact, it is eminently *the* operation suitable for the general practitioner. This, then, was the operation I determined on, for, although I was perfectly aware that the pelvic measurements were less than that considered the safety limit by many operators, there were still greater objections to be urged against any of its alternatives.

Digitized by Google

Having shaved the pubes and disinfected the vulva and vagina, I proceeded to make a small stab incision over and down to the top of the pubic bone. This incision was situate about three-quarters of an inch from the symphysis on the left side, for the reason that it is advised to sever the bone on the side where the occiput is.

Through the stab hole and in a direction behind the pubic bone was passed Döderlein's powerful blunt needle. During its passage downwards it was made to hug the bone, and to ensure precision in this respect a finger passed into the vagina guided the point with accuracy, the object aimed at being to pass the needle between the bone and its periosteum. When the needle was seen to bulge out the soft tissues beneath the pubes it was cut down on and made to emerge through the wound. Here it lay below and well to the side of the clitoris and urethra. A Gigli's wire saw was now attached to its eye, and was brought through the wound when the needle was withdrawn.

So far all had gone well, but when once the sawing of the bone began sudden and alarming hæmorrhage ensued and continued throughout the process of bone severance. We are told that a sense of lessened resistance makes itself apparent on complete division of the bone. I can only say that this was not so in my case, though my assistants sitting on each side of the patient with their hands on the pelvis state that they were conscious of the change, but did not immediately appreciate its cause. The bone did not gape as I had supposed it would do, and I am not in a position to state that the sawing process was not continued for a few seconds longer than was necessary, and was a possible cause of some portion of the severe hæmorrhage. This latter ceased as suddenly as it commenced, and was easily controlled by pressure of the soft parts against the pubes.

Delivery by forceps was then attempted, but though the gap in the bone widened to the extent of three or four inches it was not possible by their aid to make the head enter the brim. Internal podalic version was, therefore, adopted, and the delivery of a living child easily accomplished.

Inspection showed a condition of very serious laceration of the soft parts, the cervix was torn into the lateral fornix, and the tissues lying between the gaping bones had given way in their entirety. It became necessary to repair these several tears,

Digitized by Google

and for this purpose catgut was employed exclusively. Drainage of the compound fracture wound was provided for by a wick of iodoform gauze, and an ordinary binder kept the several aseptic dressings in position.

The patient suffered from an extreme degree of collapse, and I cannot too greatly praise the zeal, skill, and attention of Dr. Wrench, my Assistant Master, and Dr. Wells, the Clinical Clerk, who worked assiduously for hours to restore her.

The operation, as thus performed, has been modified in many particulars. I have not, however, satisfied myself that any of these modifications are superior in respect to ease of performance or efficiency to the one I have described. Many surgeons have reported similar lacerations to these which I encountered, and, indeed, they will have to be looked upon as the rule rather than the exception in pubiotomy where the conjugate diameter falls below 7 cm.

All are agreed that hæmorrhage is the greatest peril likely to be encountered during this operation; and that this proves at times uncontrollable is shown from a recently reported case in which a fatal hæmorrhage occurred in the practice of v. Rosthorn Heidelberg.

My patient's temperature rose upon three occasions to 100.8° F. It fell to normal on the eleventh day, and remained so to the day of her discharge at the end of the ninth week. This prolonged stay in hospital was rendered necessary because of the circumstances of her case, which compelled her to start manual work immediately on leaving. The soft parts had entirely healed before the end of the third week, and locomotion was unimpaired at the time of her departure. The bones had united well with an apparent widening of about one-quarter of an inch.

In discussing the two papers on Pubiotomy,

Sir A. V. Macan said the ease with which he had seen the operation done by an operator who had never done it before had convinced him that pubiotomy was certainly the operation in such cases as had been described by Dr. Gibson. There was nothing in it which could not be done by a man who had been through the Dublin school; and he considered it of the utmost importance that they should be able to put before the practitioner in the

Digitized by Google

country the possibility of saving the life of both mother and child in cases where he had put on the forceps, but had failed, and was face to face with perforation.

Dr. Neill considered the operation of great importance since the risk of sepsis would be less than in the induction of premature labour.

Dr. Alfred Smith believed the operation had come to stay.

Dr. Jellett asked the communicators whether they would agree in dividing the operation into two classes—first, as the operation of election which they would select in preference to other procedures in any case in which they had reason to believe that the patient could not be delivered by forceps or her own efforts; secondly, as the operation of compulsion, where the forceps had been tried and failed. Looking at the operation from an unprejudiced standpoint, it seemed to him that in doing Cæsarean section on a perfectly healthy patient, unweakened by the long continuance of labour, they were more certain of the after results. On the other hand, he certainly agreed that, in the second class, pubiotomy had got its place and would keep it. The ease with which it was performed, the small amount of assistance required, the small extent of the wound, and the short time in performance, would be important factors in producing a small mortality.

The President said he could not see how pubiotomy could take the place of Cæsarean section in certain cases. He thought that its danger had perhaps been passed over too lightly. The danger of injury to the bladder had been amply demonstrated by recorded cases. The danger of hæmorrhage must, he thought, be considerable, since a fatal case had been reported from Vienna. He could not help wondering whether the locomotive powers of the patients had been satisfactory afterwards in all cases, or whether sufficient time had elapsed to enable them to judge on the point. He agreed, however, as to the value of the procedure.

Dr. Tweedy, in reply, said that while both symphysiotomy and hebotomy had come to stay he did not think that either would prove a perfect panacea. He had performed both operations with equal ease.

Dr. Gibson, in reply, said that as regards the chance of injuring the bladder they must remember that in pubiotomy they had a great protection of the pelvis

Digitized by Google

by the undivided soft parts. The bladder was never so intimately connected with the pubic bone that any tearing could result from the small amount of stretching undergone, except when owing to a previous puerperal sepsis there were adhesions between the bladder and the bone. This occurred very rarely. A French author had stated that the ends of the bone could separate up to 8 cm. without injury to the bladder or articulations. If bleeding could not be stopped by compression they could open the wound and find where the bleeding was coming from. Pubiotomy was, he believed, a safer operation than Cæsarean section up to a certain point—*i.e.*, a pelvis with a conj. vera above 6.75 cm. The latter was better done at the beginning of labour, therefore we had no chance of seeing what the contractions would do for us, and no matter how well it was done there were cases on record where the cicatrix gave way afterwards. Both operations would unite equally well if performed aseptically, but the danger to the bladder and urethra was much greater in symphysiotomy than in pubiotomy, and the former was also a more difficult operation, and therefore not so well suited for the country practitioner.

Digitized by Google

CLINICAL REPORT OF THE ROTUNDA HOSPITAL.

For Year ending 31st October, 1906.

By E. HASTINGS TWEEDY, F.R.C.P.I., Master;

AND

ARTHUR HOLMES, M.B., B.Ch., B.A.O., Assistant Master.

[Read in the Section of Obstetrics, May 24, 1907.]

AND

PATHOLOGICAL REPORT.

By ROBERT J. ROWLETTE, M.D., Pathologist.

[Read in the Section of Pathology, May 3, 1907.]

For the compilation of the present report, from November 1, 1905, to October 31, 1906, I have again to thank in chief part my Assistant Master, Dr. Arthur Holmes, for although his late colleague, Dr. Roy Dobbin, gave him some help, he was unable to do as much as he would have wished owing to his appointment to the important post of Professor of Obstetrics in the Cairo University.

The curtailment of Dr. Dobbin's term of office has been a great disappointment to us, and he bears with him into his new sphere of work the unanimous and hearty good wishes of his many friends in the Rotunda Hospital.

The year has produced no radical change in either originisation or technique; indications, however, are not wanting that a greater degree of perfection has been attained in both these particulars. Now that the new wing is nearing completion it is satisfactory to be able to state that its erection in no way interfered with or curtailed the usefulness of the Institution. It is hardly necessary to add that it caused the work to be carried on under difficulties

Digitized by Google

and with much discomfort. Amongst the difficulties encountered during this transition period I may mention that we have been deprived of the use of the disinfecting chamber, and have had to depend upon the well-known methods available in every household for the disinfection of patient's clothing, mattresses, &c. Notwithstanding this inconvenience, our morbidity has still further fallen. This decrease is to be entirely attributed, I believe, to a greater precision in the carrying out of hospital technique and to the zeal and loyalty of our nursing and medical staff.

The new swing cot-beds, which were introduced last year, have more than justified their adoption; they have increased the comfort, safety and health of both mother and baby, whilst as a means of training the probationer nurse in the management of babies they have proved invaluable. These advantages have not been gained without greatly adding to the work of the nursing staff, so much so, indeed, that we cannot increase these beds beyond their present numbers (40) until the opening of the new wing provides us with additional nursing accommodation.

A new record has been reached in the delivery of 4,158 women during the year. This increase of 76 is entirely made up from patients delivered in the extern maternity, for the intern maternity stands precisely as it did in the previous year—namely, 1,904 deliveries. This in itself is a remarkable coincidence, but a still more remarkable coincidence is found in the fact that the number of primiparæ delivered—700—is likewise precisely that of the year before.

EXTERN MATERNITY.

In the Extern Maternity there were 2,254 deliveries, a number which sufficiently shows the value of the hospital as a charitable as well as a teaching institution.

From a statistical point of view, however, I must clearly

Digitized by Google

emphasise the fact that the extern maternity stands in a position far inferior to that of the intern maternity. Every effort is made to procure accuracy in details of cases, but where these are collected for the most part by students with only a partial knowledge of their work, the same degree of accuracy cannot be obtained as is found in the report of the intern maternity.

Let it not, however, for a moment be thought that I consider our extern maternity inferior to others in this respect, for I group all observations collected by a number of workers in an extern maternity, be they midwives, students, or qualified doctors, as untrustworthy for the compilation of accurate statistics.

It is for this reason that our extern report is always meagre in comparison with our intern. Following, therefore, our usual practice I shall content myself with a recital and short history of the fatal cases, with a brief report of one other case, which appears to me to be of special interest.

CAUSE OF DEATH.

Septicæmia - - -	4
Ante-partum hæmorrhage - -	2
Placenta prævia - - -	1
Post-partum hæmorrhage - -	1
Uræmia - - - -	1
Embolism - - - -	1
Ruptured uterus - - -	1

MORTALITY.

CASE I.—*Accidental Hæmorrhage with Death during Administration of Chloroform.*—13-para, aged thirty-six. It was decided to plug this woman's vagina because of considerable loss before the onset of labour pains. Chloroform was considered necessary for the adoption of this procedure, and shortly after its administration, whilst consciousness was still present,

Digitized by Google

the heart ceased to beat, and the patient died after six ineffectual gasps.

Case II.—*Death from Post-partum Hæmorrhage.*—2-para, aged thirty-three, was seen first after birth of child, the friends not sending to the hospital until fifteen minutes had elapsed after delivery. It was found on arrival that there had been considerable *post-partum* hæmorrhage; patient was pulseless, but all hæmorrhage had ceased. After the collapse had been combated the placenta was removed manually, but the patient shortly afterwards collapsed and died.

Case III.—*Death from Uræmia.*—7-para, aged thirty-six, was delivered normally. Temperature 101.4° and pulse 100 at time of delivery. The following day the temperature reached 104.4° and the pulse 110. There was general œdema and a large quantity of albumen in the urine, respirations 40, and marked crepitation at the bases of both lungs. The temperature remained about 104°, and the pulse corresponding. The patient died on the fourth day.

Case IV.—*Death from Septicæmia.*—8-para, aged thirty-four. The child was born before arrival. There was some degree of *post-partum* hæmorrhage, and the placenta was removed manually, being morbidly adherent. The pulse was imperceptible, but eventually rallied. The temperature rose slightly, and as it remained above normal the uterus was douched without much effect. On the eighth day the temperature was 100° and the pulse 120. The breasts were tender. An abscess developed, and was opened in the left breast on the tenth day. The respirations became rapid, reaching 36. On the thirteenth day the right breast had to be opened, for a large abscess had formed. Signs of pleuro-pneumonia now set in, and death occurred in a few days.

Case V.—*Death from Accidental Hæmorrhage.*—7-para, aged forty, slight hæmorrhage at term, tense uterus, no fœtal heart heard, pulse quiet, no collapse. This woman refused on two occasions throughout the day to permit the Clinical Clerk to make a vaginal examination. Having been summoned to the house for the third time he found her in a collapsed condition. As

Digitized by Google

there was little external hæmorrhage he judged with correctness that it was concealed. He accordingly plugged the vagina, and removed these plugs in six hours, as labour was in full progress. A dead child was immediately born, and the placenta followed quickly, accompanied by a large quantity of blood clots. In spite of there being no further hæmorrhage the patient died within two hours.

CASE VI.—*Death from Unavoidable Hæmorrhage.*—11-para, aged thirty-six, a history of recurrent floodings for five weeks before sending to hospital. The day before attendance was sought she had had considerable hæmorrhage, and this was continuing when she was first seen. She stated that she was about seven months' pregnant. On examination the os admitted one finger, and the placenta was felt. The vagina was accordingly plugged, and the plugs were removed in twelve hours, no labour pains having ensued. The vagina was again plugged, and after a further twelve hours had elapsed the plugs were removed. Labour had not started, but the os admitted two fingers, and, consequently, version was performed as hæmorrhage began. After pulling down the foot the hæmorrhage ceased, labour followed quickly, and the child was born in an hour. There was some *post-partum* hæmorrhage, which was rapidly controlled, but the patient, who was very anæmic from the previous loss, sank and died six hours later.

CASE VII.—*Death from Septicæmia.*—7-para, aged twenty-eight; normal labour. Temperature 100.8° and pulse 129 on the second day. Pulse and temperature remained high, despite all treatment, and patient died in a few days.

CASE VIII.—*Death from Septicæmia.*—3-para, aged twenty-four; both former pregnancies terminated in difficult labour. On this occasion a shoulder presented. Version was performed, and a foot brought down. Temperature and pulse on the second day were 105° and 130, respectively. There was marked distension of the abdomen and fœcal vomiting. Patient died on the fifth day.

CASE IX.—*Death from Septicæmia.*—7-para, aged thirty-two;

Digitized by Google

normal labour; child born before arrival. The following day the temperature was 102° and the pulse 140. The third day the temperature rose to 103°, the pulse remaining the same. Chloroform was administered and the uterus explored digitally, when an intra-mural fibroid the size of a fist was felt. Phlebitis developed, and, the temperature rising, death occurred on the fifth day.

Case X.—*Death from Ruptured Uterus.*—10-para, aged forty-three; in labour four and a half hours before sending to hospital; os the size of a florin; head not fixed. Two hours later the head was at the vulva; then no progress for four hours. On arrival of the Clinical Clerk the patient was moribund. Delivery was effected with forceps, the child being dead, and the patient succumbed at once. A large rent was found in the posterior wall of the uterus, the placenta being in the abdominal cavity.

Case XI.—*Death from Embolism.*—2-para, aged thirty-two; child and placenta both born before arrival. No hæmorrhage; uterus found well contracted, and patient perfectly well. In two or three hours a messenger arrived to say that the patient had died suddenly. No hæmorrhage, and no cause found for death.

Interesting Case.—*Hydrocephalic Monster; Ruptured Uterus with Recovery.*—6-para, aged thirty-two; membranes ruptured at the commencement of labour. At the end of four hours from its onset slight hæmorrhage was seen, accompanied with strong pains, and without any attempt of fixation of the presenting part. In another three-quarters of an hour the pains were strong and continuous, the lower uterine segment was tender, and a marginal placenta prævia felt. A hydrocephalic skull was diagnosed at this time, and it was perforated. Delivery could not be accomplished until a foot was brought down by internal version. After the birth of the child the placenta was found to have passed into the abdominal cavity through a rent in the posterior wall of the uterus. This was plugged with iodoform gauze, which was left in place for thirty-six hours. Collapse was marked for some time, but patient eventually made a good recovery

Digitized by Google

INTERN MATERNITY.

MORBIDITY.

Following our custom of previous years we tabulate our morbidity statistics under two heads. The first is that which we have adopted for the guidance of our medical and nursing staff as being the most ready and most trustworthy indication of the well-being or ill-health of our patients.

Those who have followed with any interest our former reports will remember that we consider a pulse rising above 90, together with a temperature above 99° F., and continuing above these figures for the space of twenty-four hours—three bi-daily takings—as constituting a morbid state. Furthermore, we exclude the first twenty-four hours after delivery from our calculation, and as our patients as a rule leave on the eighth day we are unable to follow the cases further.

A representative committee appointed by the British Medical Association considered that this method of estimating morbidity was open to some objections as a general index of morbidity available for statistical purposes. They unanimously decided to recommend for adoption amongst the maternities of the British Empire the following simple index of morbidity—a temperature which reaches 100° F. on two occasions between the second and the eighth day. They dealt minutely with many points of detail in respect to the taking of these temperatures. It is unnecessary again to enumerate these, and I shall content myself with the statement that we have endeavoured to carry them out with accuracy.

Our percentage of morbidity as estimated by the Rotunda method has fallen to 4.33 per cent. In last year's report it stood at 6.67 per cent., and in the previous year at 10.70 per cent. These figures present an accurate picture of the progressive improvement in the health of our patients. We had

Digitized by Google

one death through sepsis of a very severe type. It occurred at a period free from hospital morbidity, and its origin could not be traced. Save for this we had no serious septic illness of any kind. It frequently happens that days, and even periods over a week, are now observed in which there is not a single case of morbidity recorded, judged by either method.

Calculating according to the British Medical Association's standard morbidity is much higher—8.43 per cent.—a figure which is but a slight improvement on that of last year, 8.77 per cent. The difference between these two last sets of figures fails to do justice to the real and sustained improvement in the health of the hospital.

My late Assistant Master, Dr. Dobbin, made an analytical study of two months having the greatest morbidity. I submit his analysis, which includes all cases of morbidity calculated by either or both standards.

For a clear understanding of this analysis it is well to explain the abbreviations :—

Eng.	=	British Medical Association's morbidity index.
R.H.	=	Rotunda Hospital.
Both	=	Morbid by both methods.
L.P.	=	Lacerated perinæum.
V.D.	=	Vaginal douche.
V.O.	=	Vaginal observation.
P.V.	=	Vaginal examination.
I.U.D.	=	Intra-uterine douche.

Total No. of cases delivered	147
No. of 1-para	57
No. of X-paras	90

April.—Morbidity Cases.

Eng.	= 13	= 8.84	per cent.
R. H.	= 10	= 6.80	„
Both	= 10	= 6.80	„

Digitized by Google

Length of Time in Hospital of Morbidity Cases.

Eng.	13	8	13	0	24	11	12	12	13	10	15	8	6
R. H.	13	0	13	12	24	0	12	12	13	10	15	0	8
Both	13	0	13	0	24	0	12	12	13	10	15	0	0

1-paras - - - - - = 8 = 14.03 per cent.
X-paras - - - - - = 5 = 5.55 ,,

Analytic Study of Cases of Morbidity.

1-para—L.P.	R.H.	8 days in. Fissured nipple, left breast. V.O. 2 P.V.
1-para—L.P.	Eng.	8 days in. Swollen legs and feet; albuminuria; 4th and 6th, even.
	(2-coccus found.)	V.D. 9th even. I.U.D. Organised blood clot and decidua came away. 1 P.V.
1-para—L.P.	Eng. & R.H.	15 days in. Breech-prolonged labour; I.U.D.; 3 times; membrane and clots got away.
4-para	Eng. & R.H.	Œdema of right foot and leg; albuminuria 7th evening, rigor. 8th morning—I.U.D. and culture (nothing found); quantity of decidua and blood clot. 8th evening—I.U.D. repeated; more debris; 10 days in. 1 P.V.
1-para.	Eng. & R.H.	13 days in. Culture; st. albus; large; 2-coccus; small bacillus. No P.V.
1-para—L.P.	Eng. & R.H.	12 days in. Sixth evening—I.U.D. nothing resulted; culture = 0; erythema 6th evening. No P.V.
3-para.	Eng. & R.H.	12 days in. Contracted pelvis (Tyrrell): occipito post.; forceps; 3rd evening I.U.D. = 0 culture = small 2-coccus and large bacillus. 1 P.V.
1-para.	Eng & R.H.	11 days in. Condylomata syphilitica; ovum expressed whole; 6½ months. No P.V.
3-para.	Eng. & R.H.	24 days in. P.P.H.; I.U.D. 4 times; clots and debris, fœtid, got away. No P.V.
3-para.	R.H.	12 days in. Adherent placenta; manual removal; I.U.D. 4 times. 1 P.V.

Digitized by Google

1-para.	Eng. & R.H.	13 days in.	I.U.D. 4 times; membrane came away; culture + No P.V.
6-para	Eng.	8 days in.	I. U.D.culture = large 2-coccus. 1 P.V.
1-para—L.P.	Eng. & R.H.	13 days in.	I.U.D. 4 times; once fœtid. return. No P.V.

Total No. of cases delivered	156
No. of 1-paras	49
No. of X-paras	107

June.—Morbidity Cases.

Eng.	= 22	= 14.10	per cent
R.H.	= 9	= 5.76	,,
Both	= 9	= 5.76	,,

Length of Time in Hospital of Morbidity Cases.

Eng.	8	11	9	14	13	9	11	10	13	13	10	9	8	12	14	8	16	8	8	8	9	15	18
R.H.	0	0	0	0	13	0	0	10	13	13	0	9	0	0	14	0	16	0	0	0	9	15	18
Both	0	0	0	0	13	0	0	10	13	13	0	9	0	0	14	0	16	0	0	0	9	15	18

1-para	= 13	= 26.53	per cent.
X-paras	= 10	= 9.34	,,

Analytic Study of Morbidities.

2-para—L.P.	Eng. & R.H.	15 days in.	No P.V. V.D.
1-para	Eng. & R.H.	9 days in.	Severe hæmorrhoids - I.U.D No P.V.
1-para—L.P.	Eng.	8 days in.	V.D.; retained membranes. No P.V.
11-para	Eng. & R.H.	16 days in.	Macerated fœtus; albuminuric; V.D.; I.U.D.; retained membranes. No P.V.
3-para—L.P.	Eng.	8 days in.	I.U.D. fragments and clots came away. No P.V.
7-para.	Eng.	8 days in.	I.U.D. No P.V. Erythematous rash, legs and shoulders.
8-para—L.P.	Eng.	8 days in.	Macerating surfaces on legs; V.D. 1 P.V.
1-para—L.P.	Eng. & R.H.	14 days in.	Albuminuric; swollen legs; twice I.U.D. 1 P.V.
1-para—L.P.	Eng.	12 days in.	I.U.D. 1 P.V.
2-para.	Eng.	8 days in.	V.D. No P.V.
1-para—L.P.	Eng. & R.H.	9 days in.	V.D.; retained membranes. No P.V.

Digitized by Google

1-para—L.P.	Eng.	10 days in.	Retained membrane came away. No P.V.
1-para—L.P.	Eng. & R.H.	13 days in.	Twice I.U.D.; clots came away. No P.V.
2-para—L.P.	Eng. & R.H.	13 days in.	Twice I.U.D.; retained placenta got away; *c* finger. No P.V.
3-para—L.P.	Eng.	10 days in.	Alveolar abscess opened; pus fœtid; I.U.D. No P.V.
1-para.	Eng.	11 days in.	Forceps; twins; highly albuminuric; V.D. 1 P.V.
3-para.	Eng.	9 days in.	I.U.D.; placental debris. No P.V.
7-para—L.P	Eng. & R.H.	13 days in.	Adherent placenta; manual removal; P.P.H.; V.D.; I.U.D. some clots; I.U.D. some placental debris. 1 P.V.
1-para—L.P.	Eng.	14 days in.	I.U.D.; placental debris; *c* finger and curette. No P.V.
4-para.	Eng.	9 days in.	V.D.; I.U.D.; fœtid retained lochia. No P.V.
1-para—L.P.	Eng.	11 days in.	V.D.; tendency to puerperal ulcer. No P.V.
1-para—L.P.	Eng.	8 days in.	Before V.D. membranes came away; V.D., more membranes; I.U.D. placental debris got away; 2- I.U.D. = negative. No P.V.

What at once strikes us in looking over his figures is the number of perineal lacerations associated with slight conditions of morbidity; this, too, is obviously the reason why primiparæ so enormously exceed multiparæ in respect to morbidity.

HYPEREMESIS GRAVIDARUM.

This condition arose in three instances. In one it was associated with hydramnios (*vide* Hydramnios), and ceased after labour had been induced on account of the dyspnœa caused by that condition. The patient, a 4-para, was eight months pregnant.

The second patient, a multipara, six and a half months pregnant, had suffered from persistent vomiting for a fortnight before admission. She was in a wretchedly emaciated

Digitized by Google

state, and was severely constipated. Turpentine enemas were administered, followed by saline injections. Food of any sort was prohibited for the first twenty-four hours, but at the expiration of that time small quantities of pepsined whey were borne, and finally milk pudding was retained. The patient insisted on leaving hospital before her cure was complete, and we have since lost sight of her.

The third case occurred in a multipara, eight months pregnant. She suffered from an abscess of the vaginal wall. It was opened, and the sickness promptly ceased.

ECLAMPSIA.

Eight of our patients developed eclampsia, and in three of these the condition appeared after delivery.

Case I.—A. F., primipara, aged twenty-five, developed five fits within three hours after the termination of the third stage of labour. Her mental convalescence was slow, and she remained sluggish for several days. Urine contained albumen, blood and casts, both granular and hyaline. She was discharged on the fifteenth day with some slight albuminuria remaining.

Case II.—M. J. B., 2-para, aged twenty-six, admitted, January 7, with slight swelling of the lower limbs and considerable albuminuria. She was eight months pregnant, but no fœtal heart could be heard. Two days after admission she developed eclampsia, and had four fits within an hour. On recovering consciousness she declared she could see nothing. In twenty hours from the onset of the first fit labour completed itself, a macerated child being born. The day following delivery she had another slight fit, but her progress from this on was most satisfactory, and she left the hospital on the thirteenth day in a normal condition in respect to both eyesight and general health.

Case III.—M. G., primipara, aged eighteen, delivered, January 22, of living twins, had three slight fits starting seven hours after delivery. The urine was albuminous, and mild morbidity per-

Digitized by Google

sisted until the ninth day. She was discharged cured on the eleventh day.

Case IV.—M. M., primipara, aged nineteen, was seized with an attack of vomiting on February 23. This was followed by two severe convulsions in rapid succession, and her condition on arrival at hospital was one of deep coma. Fifteen more fits took place, and about fourteen hours after admission the os was found fully open with the head fixed in the brim and the membranes unruptured. A large macerated child was then delivered by forceps. No fits occurred after the birth of the child, but the woman remained for two days in a comatose state with urine loaded with albumen. She was discharged cured on the seventeenth day, but subsequently returned to the dispensary suffering from an enormous galactocele. This was probably of traumatic origin, having arisen from the piercing of a milk-duct by the transfusing needle. Persistent pressure and aspiration on several occasions failed to bring about relief, and eventually it was found necessary freely to lay open the cavity and to plug with iodoform gauze.

Case V.—B. S., 2-para, aged twenty-six, delivered, March 8, of a living child at term. She appeared very stupid on admission, and five hours after the completion of the third stage a fit occurred, followed in an hour by a second fit. She left hospital on the eighth day with pulse and temperature normal, but with albuminuria persisting.

Case VI.—E. H., primipara, aged twenty-five, admitted in labour at term on July 18. Œdema of the legs and slight albuminuria were present. She developed a severe eclamptic convulsion, and as the os was fully dilated with the head low down a living child was extracted by means of forceps. The case was further complicated by a purulent vaginal discharge of gonorrhœal origin. Morbidity remained until the seventh day, but she was discharged from the hospital cured on the ninth.

Case VII.—M. O. D., 2-para, aged thirty-three, was admitted because of prolongation of the second stage of labour, and because of the occurrence of an eclamptic fit. A brow presentation was diagnosed, and a dead fœtus extracted by forceps. She left

Digitized by Google

the hospital cured on the eighth day. It is interesting to note that this woman had had eleven fits during her previous confinement.

Case VIII.—This case occurred during my absence from hospital on sick leave. It was one of exceptional severity, and ended fatally. (See Maternal Mortality, Table No. X, Case 8.)

HYDRAMNIOS.

There were seven cases of hydramnios. In one, a male, anencephalic fœtus with spina bifida was present; in a second there were stillborn twins, male and female; the hydramnios was associated with the male fœtus in the first sac; in the third, living female twins, with the second sac involved. Two children, a male and female, were macerated, whilst in the remaining two cases the children, both males, survived birth but a few hours. Thus two out of nine children alone left hospital alive.

Dyspnœa was a marked symptom in two cases, and necessitated induction of premature labour by rupture of the membranes in each instance at the eighth month. All the women were multiparæ, two were 4-para, and the condition in one was complicated by hypermesis.

ABORTION AND PREMATURE DELIVERY.

Our sixty-six cases of this condition show an increase of twenty-seven as compared with last year.

When possible the uterus was permitted to empty itself of its contents by natural efforts; active interference was only undertaken because of the presence of dangerous hæmorrhage or of a fœtid discharge.

In two of these cases slight morbidity occurred, while in the others temperature and pulse ran an absolutely normal course.

HYDATIFORM MOLE.

Our patient, a 9-para, aged forty-eight, had missed three

Digitized by Google

periods. She noticed that her abdomen was rapidly becoming larger, and she attributed her symptoms to change of life.

A globular tumour reaching to the umbilicus was felt on bi-manual examination. It was accompanied by all the softening conditions of pregnancy, but the feel of the uterus did not give the impression of one that contained a fœtus.

A diagnosis of hydatiform mole was made, and this was confirmed three hours afterwards when she expelled the mass spontaneously. The puerperium was uneventful.

HYDRORRHŒA GRAVIDARUM.

Under this head we describe one case.

A 6-para, aged thirty-three, seven months pregnant, complained that for nine days a watery and blood-tinged discharge had flowed from her continually. She appeared weak and anæmic, and we became apprehensive in respect to her condition. The vagina was accordingly plugged; the plugs were removed after eight hours, as labour was in full progress, and a puny child was delivered in three hours after their removal.

The woman suffered from glycosuria, and the infant survived its birth for eight days.

ACCIDENTAL HÆMORRHAGE.

This complication was met with six times in the course of the year. In five, where the hæmorrhage was external, recovery took place. The remaining case was a typical and terrible example of concealed accidental hæmorrhage. (*Vide* Maternal Mortality, Table No. X., Case 6.)

PLACENTA PRÆVIA.

There are six cases of this condition to record.

The placenta was felt on vaginal examination in all cases save one. In this case the patient was advanced in labour, and suffered from *ante-partum* hæmorrhage. On the birth of

Digitized by Google

the head, portion of the placenta was found lying in front of it.

Marginal placenta occurred in two cases, in one of which a dead child was born nineteen minutes after the turning operation, while in the other labour had well advanced, and no treatment was required.

Placenta prævia centralis was diagnosed in the remaining three cases, and they were all treated by podalic version. One of these entered the hospital in a shockingly collapsed condition. She had travelled that day from Mullingar, and had bled continuously throughout the journey. She survived but a short time after version. (*Vide* Maternal Mortality, Table No. X., Case 2.)

HERNIA OF THE GRAVID UTERUS.

The following is a remarkable case of pregnancy occurring in a uterus which formed the contents of an irreducible ventral hernia :—

E. D., 11-para, aged forty, was admitted to hospital, December 22, 1905, in labour. She stated that an abdominal operation had been performed some eighteen years previously, and in her subsequent pregnancy she noticed a protruding swelling in her abdomen. This swelling, she noticed, did not disappear after childbirth, and increased greatly in size when she next became pregnant. The delivery, however, in both cases was uneventful. The present pregnancy was the third since the operation. A round dumpling-like tumour, with a constricted neck, lay beneath the abdominal skin and overhung the pubes. The skin had ulcerated in several places, and these ulcers were discharging foul matter. The floor of one of these ulcers was uterine muscle. Fœtal movements were distinctly felt and seen, and when the woman assumed the erect position the fundus lay in a plane greatly below the lower uterine segment. As labour had already begun, and fearing septic infection, the ulcers were covered with lint soaked in creolin and kept in position by adhesive plaster. We did not for one moment contemplate that the woman could

Digitized by Google

empty her uterus by natural efforts, but the unexpected happened, and within three hours of her admission a living child was born, weighing 3½ lbs. After its birth the uterus could not be returned into the abdomen, and the placenta being firmly adherent was removed, though with considerable difficulty. The case was complicated by some *post-partum* hæmorrhage. An uneventful puerperium followed, and in spite of every endeavour she insisted on leaving hospital on the tenth day, the ulcers still unhealed. The history was one of full term pregnancy, and the child, though small, presented all the appearances of one at term. It is probable that its small size was due to the constriction of the uterine arteries by the ring of the hernial sac.

PROLAPSE OF FUNIS.

This occurred in ten cases, all the children save one (a premature delivery) being born alive.

The cord prolapsed in two women, whose labour was induced at the eighth month, once in a brow presentation, and twice in breech. The complication necessitated delivery by forceps four times, and version was performed successfully in the brow case.

POST-PARTUM HÆMORRHAGE.

There were fifteen cases of this variety of hæmorrhage in the year. Expression of the placenta terminated hæmorrhage in five of these cases. In the other five it was found necessary manually to remove the placenta.

Atony of the uterus accounted for two cases, in one instance following the birth of twins, and in the other, forceps delivery for prolonged second stage. For one of these the uterus was plugged with iodoform gauze, the vagina with cotton wool, and abdominal pads, held tightly in position by binders, fixed the uterus in acute anteflexion over the pubes. A hot uterine douche proved effective in the other.

Traumatic hæmorrhage was met with twice, bleeding being easily controlled by sutures.

Digitized by Google

We had one case of secondary hæmorrhage six hours after removal of the placenta.

Hypodermic injections of ergotinin were administered as a routine treatment in all the cases, the dose varying from the $\frac{1}{30}$ to the $\frac{1}{25}$ of a gr.

APPLICATION OF FORCEPS.

Forceps was applied in fifty-one instances. (*Vide* Table No. VII.)

INDUCTION OF PREMATURE LABOUR.

This operation was undertaken eleven times—twice for severe dyspnœa and cardiac distress due to hydramnios, twice for severe and persistent albuminuria with eye trouble, and seven times for contracted pelves, with a fœtal mortality in the latter series of four.

In the presence of this large fœtal mortality I feel that I have laid myself open to criticism in respect to my treatment of these cases, and there is no doubt that the advent of pubiotomy has already rendered premature induction of labour for contracted pelves obsolete.

I was formerly much prejudiced against this operation, and for the first two years of my Mastership induction of labour was but rarely brought about. I believed that labour induced after the thirty-sixth week had no effect in making the birth less difficult, and that if performed earlier than the thirty-second week the chances of procuring a living and healthy child were too remote to make the operation justifiable. I held, and still hold, that it is impossible to estimate with accuracy the age of the child, and I argued that the range of the period in which induction was advisable was too narrow to render it an operation of precision.

My predecessor, Dr. Purefoy, has, on the other hand, always been a staunch advocate for this line of treatment, and holds

Digitized by Google

the view that labour may be induced even within a few days of full term. He argues with much truth that we have no guarantee that a woman will not carry her child for many weeks beyond full term; and this, as a matter of fact, actually occurred in one of my own cases, where I failed to procure a living child delivered through a conjugate diameter of 9.5 cms. because of its enormous size. In this case, as well as in another in which I similiarly failed, Dr. Purefoy had previously succeeded by the induction of premature labour. I was, naturally, impressed by his successes, and determined to give induction a fair and extended trial.

Our present aseptic precautions, and more particularly the wearing of rubber gloves and the insertion into the uterus of bougies, which have been boiled in and impregnated with solution of corrosive sublimate, have rendered the operation practically free from any danger to the mother, and could similar results be obtained in respect to the child, the procedure would be in every respect ideal. It still is, and will long remain, I believe, the operation most suitable for the general practitioner who is unable to avail himself of the advantages offered by an up-to-date hospital.

Case I.—S. F., 3-para, aged thirty-four, flattened rachitic pelvis, conjugate vera 7 cms., had labour induced in the thirty-sixth week of pregnancy. Aseptic bougies were inserted and the cervix tightly packed with gauze soaked in sterile glycerine. The bougies were removed in twenty-four hours and the process repeated. In forty-eight hours the cervix began to be taken up, and the os became partially dilated. The head, however, showed no sign of fixing, and version was performed when the patient was in labour for twenty-four hours. A stillborn child was extracted with difficulty. (*Vide* Case 2, Table No. VII.)

Case II.—M. K., 11-para, aged forty-three, had labour induced for the eighth time at the end of the thirty-seventh week of pregnancy. She suffered from an exostosis springing from the posterior wall of the pubes. Labour started twenty-four

Digitized by Google

hours after the adoption of means similar to those above stated. The membranes ruptured before the os was fully dilated, and a fœtal leg presented. Delivery followed a natural course as far as the shoulders, but great difficulty was experienced in the delivery of the after-coming head, which showed a deep indentation of the left parietal bone. The child's arm was found paralysed shortly after the birth, but this showed marked improvement before its discharge from hospital. (*Vide* Case 3, Table No. VII.)

Case III.—E. K., 6-para, aged twenty-seven, conjugate vera 9 cms., had had labour induced on two previous occasions. She entered hospital the thirty-ninth week of her pregnancy, and we endeavoured to induce labour by the usual means. This was successful after forty-eight hours, and membranes ruptured early, but pains were very weak, and she continued in a condition of lingering labour for thirty hours. Forceps were then applied through an os three-quarter dilated, and a stillborn child extracted. (*Vide* Case 5, Table No. VII.)

Case IV.—S. M., 3-para, aged twenty-three, admitted in the thirty-seventh week of pregnancy, conjugate vera 7.2 cms. Labour started thirty hours after the introduction of bougies and gauze, and membranes ruptured early, but the head showed no sign of fixing after many hours. Exhaustion as indicated by a rising temperature and pulse induced us to hasten delivery, and this was accomplished by podalic version. A stillborn child weighing seven and a quarter pounds was extracted. (*Vide* Case 7, Table No. VII.)

Case V.—T. M., 3-para, aged twenty-eight, admitted with a history of difficult former labours—forceps with the first, version with the second; both children dead. The patient was in her thirtieth week with a conjugate vera of 7 cms. Labour started seventeen hours after bougies were inserted, and the child was born by breech twenty-four hours later. Delivery was not difficult, but the child was dead when extracted. (*Vide* Case 8, Table No. VII.)

Case VI.—J. F., 3-para, aged twenty-four, in the thirty-eighth week of pregnancy, conjugate vera 7.7 cms. Previous children

Digitized by Google

had been born dead by instrumental deliveries. Pains began eight and a half hours after the insertion of bougies. In six hours after its commencement the membranes ruptured and the cord prolapsed. Delivery was hastened by pressure on the fundus, and a living child was born. (*Vide* Case 9, Table No. VII.)

Case VII.—G. L., 1-para, flattened pelvis, conjugate vera 7 cms. Repeated insertion of bougies on different occasions for three days failed to induce labour pains. This method was accordingly abandoned, and in its place an ounce of sterilized glycerine was injected between the membranes and the uterine wall, the vagina plugged and a tight binder applied. Labour started in two and a half hours, and in another two hours a living child was born, the arm and head presenting together. (*Vide* Case 12, Table VII.)

Case VIII.—F. M., 1-para, aged twenty-three, admitted in the twenty-sixth week of pregnancy because of dimness of vision, œdematous labia, and partial suppression of urine. Our consultant oculist, Dr. F. C. Crawley, reported that the woman suffered from staphyloma with atrophic choroiditis in both eyes. Bougies were introduced, but were withdrawn in twenty-four hours, as labour had not begun; sea tangle tents were then inserted, and their efforts to induce labour were supplemented by hot douches and plugging the cervix with iodoform gauze. A living child was born four days after the first efforts at induction. Albumen, which was present in great quantity before the birth of the child, diminished in a marked manner throughout the puerperium, and she left the hospital with eye symptoms much improved.

Case IX.—*Vide* Hydramnios.

Case X.—*Vide* Hydramnios.

Case XI.—A. F., 3-para, aged thirty, admitted during her twenty-sixth week of pregnancy complaining of dimness of vision and scanty urine. The latter contained blood, and was loaded with albumen. Dr. Crawley reported the presence of albuminuric retinitis of both eyes, and we accordingly induced labour by inserting bougies. This operation took five days to complete. The patient's improvement was rapid and marked, in respect to

Digitized by Google

both kidney symptoms and eyesight, but we have failed to follow her subsequent history.

PODALIC VERSION.

This operation was performed eleven times during the year. Placenta prævia was the indication in four cases (*vide* Table No. VI.). It was adopted twice to bring about delivery in contracted pelvis where premature labour had been induced (*vide* Table No. VII.). Version was performed three times for brow presentation and twice for transverse presentation.

CÆSAREAN SECTION.

We had only one of these operations throughout the year, and this in a woman whom we had previously delivered in a similar manner.

Case.—M. H., aged twenty-nine, 2-para, admitted in a very early stage of labour. Operation was immediately undertaken, because we feared complications from rupture of the old scar. With a view to ascertain whether the fine silk which had been buried in the abdomen and in the uterine wound had or had not disappeared, incisions were made through the old cicatrices; no adhesions were found, and with difficulty the original uterine incision could be localised, being much easier felt as a depressed surface than seen. The placenta was in front, and bled freely on being cut through. A living fœtus was extracted, and the operation completed without special complication, save for the fact that the peritoneum and rectal fascia had firmly united, and were brought together by one continuous silk suture. To add strength to this union a few interrupted silk-worm gut reinforcing sutures were applied. The child, a female, seven and a quarter pounds, was nursed from the breast from the third day. (*Vide* Case 1, Table No. VII.)

Note.—No trace of the original silk could be seen.

MANUAL REMOVAL OF THE PLACENTA.

This operation was performed twenty times, gloves being worn on all occasions. It was sometimes found necessary to

Digitized by Google

pass a sterile gauze wipe into the uterus, for this device enables the gloved hand to peel the placenta or membranes from the uterine wall.

Post-partum hæmorrhage was the indication in five cases, and adherent placenta in all the others. Secondary *post-partum* hæmorrhage occurred in one case, but was promptly stopped by a hot intra-uterine douche.

HYPOSTATIC PNEUMONIA.

S. W., a primipara, aged fifteen, was delivered at term on February 11. She had previously been a patient in Adelaide Hospital, suffering from mitral stenosis. On the seventh day of the puerperium the temperature, which had been previously normal, rose to 101° F., and later on in the day to 105.4° F., pulse 120. A troublesome cough developed, and the sputum was blood-stained. The heart was extraordinarily tumultuous, with loud double mitral murmur, the cardiac area tender to pressure, and the apex beat depressed downwards. Temperature and pulse remained high for several days, but gradually fell until the 26th day, when the temperature was normal, with pulse 92.

Our Consulting Physician, Dr. James Little, was unremitting in his care and attention, and though the case was in every way a terrible one, complicated by sleeplessness and wild maniacal attacks during the height of the disease, the patient was able to leave the hospital in a convalescent state four weeks after delivery.

MANIA.

Three women developed mania.

Case I.—3-para, aged twenty-seven, a very anæmic woman, developed a high temperature and pulse on the second day of the puerperium, a culture taken from the uterus proving sterile. Urinalysis revealed nothing abnormal. On the fifth day the

Digitized by Google

patient developed wild maniacal symptoms with screaming fits. Under the influence of large doses of sedatives she gradually became quiet, and temperature fell to normal on the seventh day. Iron was administered for the anæmia, and the remainder of the puerperium was uneventful.

Case II.—E. K., aged thirty-four, 11-para, was admitted with hæmorrhage due to an incomplete abortion. *Delirium tremens* developed on the fourth day, but subsided under the influence of full doses of bromide. She was discharged cured on the tenth day.

Case III.—M. K., 1-para, aged twenty-one, became maniacal on the sixth day, her delivery and puerperium up to this having been quite normal. It was necessary to feed her for several days by means of the stomach-tube. She had to be removed to an asylum on the fourteenth day.

EPILEPSY.

A 3-para, aged twenty-seven, had an epileptic seizure on the sixth day of the puerperium. She had been under treatment for this disease for three years.

URTICARIA HERPETIFORMIS OF DÜHRING.

This condition was diagnosed by Dr. Wallace Beatty, who kindly saw the patient in the absence of Dr. James Little.

It arose in a primapara, aged twenty-two, who had eaten a large meal of tinned salmon the day before admission. The temperature remained irregular for the first four days, never reaching to 100° F., but being, nevertheless, above normal. A red rash at the expiration of this period appeared on her abdomen and flexor aspect of her limbs; it spread rapidly over the entire body, which became covered with blebs thirty-six hours later, some of which were as large as 3 × 10 inches, and were filled by turbid serum.

Her temperature reached a maximum of 103.6° on the fourteenth day, symptoms gradually subsided, and she was discharged completely cured one month after delivery.

Digitized by Google

MATERNAL MORTALITY.

There were eight deaths during the year.

CAUSES OF DEATH.

Placenta prævia - -	1
Pyæmia - - -	1
Typhoid fever - - -	1
Concealed accidental hæmorrhage	1
Eclampsia - - -	1
Labour shock - - -	3
Total,	8

PLACENTA PRÆVIA.

CASE I.—E. C., aged forty, 11-para, admitted, March 16, in a collapsed condition, with pulse barely perceptible at wrist. She had travelled that morning from Mullingar, and had walked from the Broadstone Terminus to Arran Quay where a friend of hers lived, and in whose house she fainted. She had been bleeding continuously for several hours, and her clothes were soaked with blood. She fainted four times before admission to hospital. On a diagnosis of marginal placenta being made bi-polar version was performed, and every effort made to rouse her from her collapsed state. Hæmorrhage was entirely checked after her admission to the hospital, but in spite of every effort to restore her she died in three hours.

CASE II.—E. N., primipara, aged twenty-eight, was confined normally on May 12. Her perinæum was lacerated and required stitching. The puerperium was uneventful until the seventh day, when her pulse and temperature went suddenly up. On the following day they had fallen to 101.6 and 108° respectively, and this after a vaginal douche had been given. A foul-smelling uterine discharge developed and indicated a uterine douche, and at the same time a culture was taken for microscopic examination. In this was found a large diplococcus, a small diplococcus, and a bacillus. Temperature and pulse remained continuously high, and on the thirteenth day the patient had a rigor, and rigors

Digitized by Google

from this time constantly recurred until her death on June 25. Her uterus, which was explored on the third day of her illness, contained a quantity of broken-down endometrium, but no placental or membranous tissue. The pathological finding showed clearly that pyæmic infection was the cause of death.

Case III.—Primipara, aged twenty-one, was admitted in labour, and was suffering from a fast pulse and high temperature. Her delivery was normal, and her general condition suggested typhoid fever. Her blood was subjected to Widal's test, and gave a positive reaction (1 in 80). Temperature ran the usual typhoid course, and she died on the eighteenth day of the puerperium. The intestines showed typhoid lesions.

CONCEALED ACCIDENTAL HÆMORRHAGE.

This is the first typical case of concealed accidental hæmorrhage which I have ever seen, and I cannot believe that a case such as this is amenable to any known form of treatment.

Case IV.—The patient, aged thirty-five, 11-para, was admitted on August 8 from the extern maternity with the following history:—She had gone out early on the previous morning with a small child in her arms, and had become very drunk. On arriving home late at night she was remonstrated with by her husband, and, though she was at the end of the eighth month of pregnancy, she attacked her husband and some others in the house, and had to be wrestled with and held down with violence. Shortly after this scene she became very weak, and fainted several times. Help was then sought from the Rotunda, and our students found her abdomen tense and tender, and very hard. There was no trace of external hæmorrhage, but both arms and legs were covered with large bruises. The fœtus could not be felt. Having no doubt that we were dealing with a case of concealed accidental hæmorrhage, I gave orders that the vagina should be plugged and a tight abdominal binder be applied, in the belief that such a line of treatment would directly control the blood flowing through the uterine arteries. In addition to this the usual methods were adopted for restoring patients from shock. On visiting the woman some time afterwards I found blood had begun to flow from the uterus, and had saturated the plugs.

Digitized by Google

Knowing that hæmorrhage cannot penetrate vaginal plugs when properly applied I removed them, and proceeded to replug the vagina myself. In this I experienced unexpected and surprising difficulty, for the reason that the intra-uterine pressure had caused complete obliteration of the fornices, and the pledget instead of remaining where placed, as it usually does, was immediately driven out. It was only by fixing the first plug by my finger that I could get a second into position, and thus working I forced back the fornices into their normal positions, and then proceeded to finish the operation in the usual manner, which has been fully described in previous reports. In five hours time labour contractions were observed, and though no further hæmorrhage appeared the woman's condition was continuously becoming worse, and this in spite of all the known methods which were tried to combat collapse. The plug was now removed, and the os found fully dilated; forceps were asked for, but before they could be got ready the woman had delivered herself naturally of a dead child. The birth of the child was followed by the placenta and a large quantity of dark blood-clots. The uterus was sharply anteflexed, and pressure on the aorta exerted to prevent any further hæmorrhagic loss, which was absolutely insignificant in amount. Venous saline infusions, oxygen, stimulants and artificial respiration proved utterly unavailing, and the patient died one hour after delivery.

ECLAMPSIA.

For the notes of this case I am indebted to my Assistant Master, who was acting for me in my enforced absence from the hospital due to a broken wrist.

Case V.—M. G., 2-para, aged twenty-eight, seven months pregnant, was admitted from the extern department at 3 a.m. on October 14. She had suffered from a severe headache all the previous day, and at 8 p.m. on the 13th she had a fit, followed by two others. A midwife was sent for, and whilst she was there eight other fits occurred. The relatives then sent to the hospital, and after the arrival of our Clinical Clerk two more fits occurred. The patient was just conscious between the attacks, and resisted treatment. Morphia ½ gr. was given, and at 12 50 a.m. on October 14 she was transferred to hospital, and had a fit in the ambulance.

Digitized by Google

Immediately on admission at 3 a.m. she had another fit, and again another three-quarters of an hour later. The stomach was washed out, but contained nothing; she had been vomiting all the day before. The bowel was also washed out. Purgatives—castor oil, 2 ozs. croton oil, min. 4, were administered, and morphia ¼ gr. was injected at 4 a.m. Quarter of an hour later a fit occurred, followed in forty minutes by another; again in an hour, and again in three-quarters of an hour. The patient was comatose with stertorous respiration. Morphia ¼ gr. was given at 6 30 a.m. A fit occurred at 7 10 a.m., and another at 8 a.m. Then there was no other fit until 10 15 a.m. Enemas were given, and house mixture by the stomach tube, and another injection of morphia ¼ gr. Fits occurred at 10 30 and 11 5 a.m. The pulse was 132. The patient became then very cyanosed. Oxygen was administered and artificial respiration carried on. The lungs were becoming œdematous, also the tongue. Hot packs had been placed on the loins and changed frequently. There was no sign of labour. The pulse ceased suddenly at 3 p.m., and the patient died. Twenty-six fits had occurred in all, of which thirteen had taken place before admission. The urine was bloody and loaded with albumen.

LABOUR SHOCK.

There remains to be reported three deaths, each bearing a strong resemblance in respect to causation, one to the other. I have, accordingly, grouped them together.

It has been a matter of considerable difficulty with me to classify these cases, and after careful consideration of the subject I have arrived at the conclusion that "labour collapse," or rather "shock," is the term by which they should be described.

The fact that in each there was a hæmorrhage slightly in excess of normal would suggest *post-partum* hæmorrhage as a possible explanation. In none, however, was the hæmorrhage profuse or greater than is constantly observed in so-called normal deliveries. It would therefore be inaccurate and

Digitized by Google

entirely misleading to classify them as *post-partum* hæmorrhage.

Case I.—A. H., 7-para, aged thirty-four, was delivered normally on March 3. There was no external hæmorrhage during the third stage, but the expulsion of the placenta was followed by a slightly excessive retro-placental blood collection, and again by a small amount of hæmorrhage which necessitated the stimulation of uterine contractions by abdominal massage and the administration of a drachm of ergot by the mouth. In two hours' time the patient's aspect was noted to have changed for the worse. About four ounces of blood clot was expressed from the uterus, and a further drachm of liquid extract of ergot administered hypodermically. Whiskey was given by the mouth, but this she immediately vomited. She dozed on and off for four hours, and during this time received a drink of water. At the end of this time she showed marked symptoms of collapse; the pulse became weak, and was 140 beats per minute. I was immediately sent for, but on my arrival in the labour ward I found her in an almost unconscious condition and in such profound collapse that she made no effort to respond to all the restorative methods within our knowledge.

Case II.—M. K., a primipara, aged thirty, delivered herself after a protracted labour, due to early rupture of the membranes. The placenta was slow in coming away, and the blood loss was slightly in excess of normal. The patient appeared perfectly well for two hours, and showed no sign of anything going wrong. Breathing then became difficult, and collapse followed. Some clots not large in quantity being expelled from the uterus, the latter was douched and explored with the finger, and finally tamponed with iodoform gauze, as it did not contract readily. It was impossible to rouse the patient by stimulation, and she died four and a half hours after the birth of the baby. Her face was somewhat cyanosed, and she did not appear exsanguinated.

Case III.—E. H., 5-para, aged twenty-six, normal delivery with protracted third stage, lasting sixty-five minutes and associated with some hæmorrhage. There was no further loss after expression of the placenta. The patient, however, showed

Digitized by Google

some signs of collapse, with pulse 140. She did not improve under treatment, and had become unconscious half an hour after the birth of the placenta. She never rallied, and died in an hour's time. This woman was miserably delicate and anæmic, and in parting with her husband at the gate lodge expressed her conviction that she would never see him again.

INFANTILE CONDITIONS.

Complete absence of the radius and thumb on both sides was present in an eight months' child, which also had an imperforate anus. The infant survived birth a very short time.

A case of peculiar interest was one of intussusception occurring in an infant on the second day. The child then began bleeding freely from the bowel, and eventually died. The condition was discovered *post-mortem*, the bowel being very inflamed at the site of the intussusception and containing blood-clot.

It is of interest to note that in the case of an eight months' fœtus slightly macerated the spirochæta pallida of syphilis was found in the liver in enormous numbers.

Digitized by Google

TABLE No. I.—*Maternity Department.*

—	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
Total deliveries -	131	149	150	138	157	145	178	150	163	160	167	150	1,838
Total abortions -	4	5	9	1	3	2	3	6	7	12	8	6	66
Not in labour -	22	27	21	17	29	17	37	25	27	52	52	32	358
Total	157	181	180	156	189	164	218	181	197	224	227	188	2,262

TABLE No. II.—*Out-Patients.*

Number of first attendances - - -	4,769
,, repeated ,, - - -	6,682
Special Dispensaries - - - - -	2,388
Total - - - -	13,839

TABLE No. III.—*Showing Nature and Number of Cases in Extern Maternity.*

Total deliveries - -	2,254	Hydramnios - -	7
Abortions - - -	287	Prolapse of Uterus - -	1
Presentations—		,, ,, Funis - -	5
Face - -	5	Retro-verted incarcerated uterus - -	1
Face to Pubis -	13	Rupture of uterus - -	2
Brow - -	4	Fibroid uterus - -	5
Breech and Footling -	77	Complete laceration of Perinæum - -	1
Transverse and Oblique	15	Mastitis - - -	5
Compound - -	1	Phlegmasia - -	4
Twins - - -	41	Maternal mortality -	11
Hæmorrhage—		Infantile Conditions—	
Accidental - -	10	Spina bifida - -	1
Unavoidable - -	15	Hydro-cephaly -	5
Post-partum - -	29	Meningocele - -	1
,, ,, secondary	1	Talipes - -	4
,, ,, traumatic	1	Intra uterine amputation of arm - - -	1
Operations—		Congenital Œdema - -	1
Forceps - -	42	Maldevelopment of Mandible	1
Versions - -	29	Ophthalmia - - -	2
Manual removal of Placenta - -	19	Pemphigus - - -	1
Perforation - -	2		
Hydatidiform mole -	1		
Carneous ,, -	1		

Digitized by Google

TABLE No. IV.—*Showing Nature and Number of Cases Treated in Intern Maternity.*

Total admissions	2,262	Eclampsia	8
„ deliveries	1,904	Mania	3
Abortions	66	Pneumonia	1
Hydatidiform mole	1	Typhoid	1
Primiparæ	700	Urticaria herpetiformis	1
Presentations—		Epilepsy	2
Face	4	Morbidity (B.M.A., suggested estimate)	8.43
Face to Pubis	8	Morbidity (Rotunda estimate)	4.33
Brow	5	Maternal Mortality	8
Breech and Footling	35	Infantile mortality—	
Transverse and Oblique	2	Died in Hospital	30
Compound	1	Premature	20
Twins	23	Recent	30
Prolapse of Funis	10	Macerated	41
Lacerated Perinæum, incomplete	490	Infantile conditions—	
Lacerated Perinæum, complete	—	Anencephalus	3
Hyperemesis	3	Spina bifida	2
Hydramnios	7	Ophthalmia	4
Myoma of uterus	4	Melæna	3
Hernia of gravid uterus	1	Cleft palate	2
Deformed pelves	13	Hare lip	1
Hæmorrhage—		Imperforate anus	1
Accidental	6	Absence of radius and thumbs	1
Unavoidable	6	Talipes	5
Post-partum	15	Spontaneous facial paralysis	1
„ „ Secondary	1	Traumatic paralysis of arm	1
Operations—		Secondary hæmorrhage from cord	1
Forceps	51	Intussusception	1
Version	11	Hæmorrhage into ant. chamber of eye	1
Induction of labour	11	Capillary nævus	1
Cæsarean section	1	Webbed fingers	1
Manual removal of placenta	20	Convulsions	1
Phlegmasia alba dolens	3		
Puerperal ulcer	2		
Mastitis	4		
Galactocele	1		

TABLE No. V.—*Accidental Hæmorrhage.*

Name	Age and Para	Date	Variety	Treatment	Result to Mother	Result to Child	Remarks
M. G.	39, IX.	1905 Dec. 7	External	Tight binder	Recovery	Alive	Spontaneous delivery. Child followed at once by placenta and clots.
K. C.	41, VII.	1906 Feb. 3	External	Forceps	Recovery	Dead	Full term child. Bleeding for two days previously. Patient in labour.

Digitized by Google

TABLE No. V.—*Continued.*

Name	Age and Para	Date	Variety	Treatment	Result to Mother	Result to Child	Remarks
S. M.	21, I.	1906 May 21	External	Plugged	Recovery	Dead	8 months' child. Delivery followed plugging 3¼ hours. Adherent placenta. Manual removal.
A. L.	26, III.	July 1	,,	Rupture of membranes	,,	,,	Patient in strong labour. Free hæmorrhage. Membranes tough and very protruding.
M. R.	24, III.	,, 15	,,	Tight binder and forceps	,,	,,	Patient admitted blanched and with air-hunger. Full term.
M.E.M.	35, XI.	Aug. 8	Concealed	Plugged and tight binder	Death	,,	Vide mortality table (Maternal). No VI.

TABLE No. VI.—*Placenta Prævia.*

Name	Age and Para	Variety	Period	Result to Mother	Result to Child	Presentation	Remarks
M. K.	37, X.	Marginal	8th month	Recovery	D.	Vertex	Version. Delivery in 19 mins.
M. M.	25, II.	Central	Term	,,	,,	,,	Version. Irregular hæmorrhage for four weeks.
E. C.	40, II.	,,	,,	Death	,,	,,	Version. Vide mortality (maternal) No. II.
J. C.	32, V.	Marginal	8th month	Recovery	A.	,,	Patient in strong labour. Portion of placenta in vagina. Nothing done.
L. G.	28, II.	Lateral?	Term	,,	D.	,,	Portion of placenta in front of head at birth. In strong labour. Nothing done.
M. M.	28, I.	Central	7th month	,,	A.	,,	Admitted plugged; the plugs removed; no hæmorrhage. Version performed. Delivery in five hours. Placenta battledore.

Digitized by Google

Table No. VII.—*Contracted Pelves.*

Name	Age	Para	Pelvic Measurements					Mode of Delivery	Result to Child	Remarks
			C. V.	Trans.	Ext. C.	I.-C.	I.-S.			
M. H.	30	II.	8	13	15	28	25	Cæsarean Section	Alive	Second operation.
S. F.	34	III.	7	11·5	20	27	28	Version	Dead	Induction at 36th week; second time.
M. K.	43	XI.	6	11·5	18	31	29	Spontaneous	Alive	Induction, 37th week; 8th time.
M. G.	22	II.	8	13	—	—	—	Spontaneous	Alive	Symphysiotomy performed previously.
E. K.	27	III.	9	11·5	18·5	29	27	Forceps	Dead	Induction, 39th week; 3rd induction.
M. W.	27	II.	7·2	—	18	28	26	Spontaneous	Alive	Labour prolonged for 20 hours; previous confinement normal.
S. M.	23	III.	7·2	13	18	31	31	Version	Dead	Labour induced, 37th week; head did not fix, so podalic version was done.
T. M.	28	III.	7	12	17	27	27	Spontaneous	Dead	Induction, 28th week; breach presentation. Previous labours, 1st term, forceps; 2nd term, version.
J. F.	24	III.	7·7	11·2	20·5	28	27	Expression	Alive	Induction, 38th week; prolapse of cord. Previous labours, term, forceps; both children dead.
M. P.	16	I.	8	11·5	19	25	25	Spontaneous	Alive	Face presentation.
L. K.	21	I.	6·8	—	15·5	26	24·5	Forceps	Alive	Prolonged labour; small head, which moulded well.
G. L.	27	I.	7	11	20	27	26·5	Expression	Alive	Induction, 32nd week; compound presentation, head and hand. Small child; weight, 4¾ lbs.
M. T.	30	III.	7·5	10	17·5	24	24	Forceps	Alive	Term, occipito-posterior. Dorsal curvature.

Digitized by Google

TABLE No. VIII.—*Forceps.*

Indication	No.	Dead Children	Remarks
Delay in second stage, with danger to mother or child	34	3	One of the children was macerated.
Prolapse of cord -	4	—	
Contracted pelvis -	3	—	*Vide* contracted pelvis, Table No. VII.
Occipito-posterior -	3	—	
Eclampsia - -	2	1	Os fully dilated, and head low down in both cases.
Induced labour - -	1	1	*Vide* E. K., contracted pelvis, Table No. VII.
Accidental hæmorrhage	2	1	*Vide* accidental hæmorrhage, Table No. V., K. C. & B. G.
Face presentation -	1	—	
Brow presentation -	1	1	Patient admitted from outside with a history of having been 68 hours in labour. *Vide* "Eclampsia" case No. 7, M. O'D.
Total - -	51	7	

SUB-TABLE A.—*Showing No. of Pregnancy.*

I.-para - - - -	36
II.-para - - - -	4
III.-para - - - -	4
IV.-para - - - -	1
V.-para and over - - -	6
Total -	51

SUB-TABLE B.—*Showing Ages of Patients.*

17–25 - -	22
26–30 - -	17
31–35 - -	7
36 and over -	5
Total -	51

Digitized by Google

Table No. IX. A.—*Morbidity.*

Estimation proposed by British Medical Association.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Total
Temp. was twice 100° or over, counting from the end of first 24 hours of the puerperium to 8th day, inclusive.	4.44	5.19	8.17	10.79	11.87	8.84	6.62	14.10	8.23	8.13	4.57	10.25	
								Total percentage ...					8.43

Table No. IX. B.—*Morbidity.*

Rotunda Estimation.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Total.
Temp. and Pulse over 99° and 90 for three consecutive takings between 2nd and 8th day.	2.22	3.25	5.72	3.52	5.00	6.80	6.07	5.76	4.11	4 06	1.71	3.84	
										Total ...			4.33

Table No. IX. C.—*Morbidity.*

	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug	Sept.	Oct.	Total.
Percentage of cases in which both estimations existed.	2.22	2.59	5.03	3.52	3.75	6.80	4.41	5.76	3.52	3.90	1.71	3.84	3.92

Table No. IX. D.—*Comparison of Morbidities.*

PRIMIPARA.

	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Total
Percentage of morbidity occurring with primiparæ.	3.92	12.19	18.96	17.54	22.40	14.03	13.88	26.53	16.39	13.33	6.55	18.03	15.31

MULTIPARA.

Percentage of morbidity occurring with X-para.	4.76	3.53	2.97	6.09	7.84	5.55	3.66	9.34	4.49	6.18	2.63	5.26	5.19

Digitized by Google

TABLE No. IX. E.—*Causes of Morbidity other than Uterine.*

Breast abscess	2
,, inflamed	2
Constipation	7
Eclampsia	4
Influenza	5
Pneumonia	1
Puerperal ulcer	3
Hæmorrhoids	2
Typhoid	1
Urticaria Herpetiformis	1
Phlegmasia alba dolens	3
Alveolar Abscess	2
Total ...	34

TABLE No IX. F.

Number of Lacerated Perinæums Showing Morbidity for Year.

English estimation - - - - - - - -	33
Rotunda ,, - - - - - - - -	10
Both ,, - - - - - - - -	28
Total,	71

Operative Cases Showing Morbidity.

Forceps (English, 3; Rotunda, 2; Both, 8) - - - -	13
Manual removals (English, 2; Rotunda, 1; Both 5) - - -	8
Induction of labour (English, 1) - - - - - -	1
Abortion removal (English, 1) - - - - - - -	1
Breech (English, 1; Both, 1) - - - - - - -	2
Plugging for P.P.H. (Both, 1) - - - - - - -	1
Total,	26

Of these morbid operative cases 8 were associated with lacerated perinæum.

Digitized by Google

Table No. X.—*Maternal Mortality.*

Name	Admitted	Delivered	Died	Cause of death	Notes
A. H.	Mar. 3	Mar. 3	Mar. 4	Labour Shock	
E. C.	Mar. 16	Mar. 16	Mar. 16	Hæmorrhage	Placenta Prævia
E. N.	May 19	May 20	June 25	Pyæmia	
M. O'N.	June 24	June 25	July 13	Typhoid	Admitted with disease
M. K.	July 20	July 22	July 22	Labour Shock	
M. M.	Aug. 8	Aug. 8	Aug. 8	Hæmorrhage	Concealed Accidental
M. G.	Oct. 14	—	Oct. 14	Eclampsia	Undelivered
E. H.	Oct. 27	Oct. 27	Oct. 27	Labour Shock	*Post-partum*

PATHOLOGICAL REPORT.

The work of the Pathological Laboratory has been, as heretofore, almost entirely in the field of clinical pathology, subservient to the ordinary work of the Hospital. It is concerned with both the Maternity and Gynæcological Wards, but chiefly with the latter. The number of specimens submitted for examination during the year is considerably in advance of that during the previous year. This increase is most marked in the specimens, such as curettings, submitted to obtain aid in diagnosis—eighty-four this year as compared with forty-four in nine months and a half of last year—and is, I believe, due to a growing recognition of the importance of microscopic examination in the diagnosis of morbid conditions.

The museum is gradually increasing, and will form, I hope, the nucleus of a collection of importance in the special field of gynæcological pathology.

Digitized by Google

Eight *post-mortem* examinations were made on the bodies of adult patients. Brief notes of these are appended :—

Case I. (Gynæcological).—Eliza d'A. Death twenty-four hours after operation for carcinoma uteri. Autopsy partial. Only abnormal condition found—quantity of blood in peritoneal cavity.

Case II. (Gynæcological).—Kathleen J., aged twenty years; died May 31, 1906, one week after exploratory operation on tumour of abdomen. Operation had revealed an inoperable mass adherent to the anterior abdominal wall from the umbilicus to the pubes. As it was impossible to attempt removal, the abdomen was closed.

At the autopsy, which was partial, the tumour was found to be the stomach, still adherent to the anterior abdominal wall and to the bladder. Its wall was thick, soft, pulpy, and white, the entire wall being affected. Internally, large flat ulcers were discovered. Secondary masses were present in the omentum.

Microscopically the tumour was found to be a columnar-celled carcinoma.

Case III. (Maternity).—E. N., aged twenty-eight years. Death seven weeks after labour.

Heart normal.

Lungs.—Advanced phthisis in both lungs. Large hæmorrhagic infarcts in both lungs.

Spleen.—One large hæmorrhagic infarct.

Uterus firm, small, without any sign of inflammation. Small fragment of placenta in left cornu. Right uterine veins enlarged and thrombosed, thrombus stretching into right iliac vein.

Other organs healthy.

A pure culture of *B. coli* was obtained from the uterus and spleen, and *B. coli* and a diplococcus were separated from the lungs.

Case IV. (Maternity).—O'N., aged twenty-one years. Died of typhoid fever (Widal test positive) three weeks after delivery.

Heart.—Small and pale.

Lungs.—Hypostatic congestion; slight broncho-pneumonia; old tubercle at left apex.

Liver.—Normal.

Spleen.—Normal, neither enlarged nor congested.

Digitized by Google

Intestines, Small.—Slight ulceration of Peyer's patches near ileo-cæcal valve.

Intestines, Large.—Extensive ulceration of cæcum and descending colon.

Mesenteric Glands.—Large and soft.

Uterus.—Firm and healthy, although containing a few shreds of adherent placenta.

Case V. (Maternity).—Mary Ellen M., aged thirty-five years. Died immediately after delivery. Examination of brain only—entirely negative.

Case VI. (Gynæcological).—Anna Maria M., aged sixty-three, observed August 24, 1906, while awaiting operation for myoma.

Lungs.—Healthy. A few old tubercles at both apices.

Heart.—Covered with fat. Muscle apparently healthy.

Abdomen.—Very marked effusion, nearly a gallon of fluid being present. Fluid is turbid and white.

Peritoneum.—Thick and leathery, with fibrinous exudate. Scattered adhesions.

Bladder.—Adherent to uterus.

Mesenteric Glands.—Enlarged.

Appendix.—Enlarged; internally red and ulcerating.

Spleen.—Small and pale.

Liver.—Pale.

Kidneys.—Healthy.

Uterus contains globular fibroid, five inches in diameter, in anterior wall. Cavity contains semi-purulent fluid.

Culture of *Diplococcus pneumoniæ* from peritoneal fluid.

Case VII. (Gynæcological).—M. B., aged thirty-six years, observed September 3, 1906, four days after myomectomy. *Post-mortem* four hours after death.

Heart.—Healthy.

Lungs.—Posterior bases congested. Otherwise healthy.

Abdomen.—Wound healthy and healing. A few ounces of blood-stained fluid in peritoneum. Blood clot size of fist at stump of uterus. Concretion in appendix.

No peritonitis.

Cultures from peritoneal fluid, from appendix, and from heart blood negative.

Digitized by Google

CASE VIII. (Maternity).—M. K., aged thirty years, primapara, died four and a half hours after the birth of child. Only pathological condition discovered—a slight rent, one and a half inches long, in peritoneum covering back of uterus; the rent did not go deeper than the peritoneum.

For clinical references to Cases III., IV., V., VIII., see Clinical Report.

Curettings or other fragments were examined for purposes of diagnosis on 84 occasions:—

TABLE I.—EXAMINATIONS OF CURETTINGS OR OTHER FRAGMENTS FOR PURPOSES OF DIAGNOSIS.

Endometritis - - - - -	51
Congested endometrium - - -	1
Placental remains - - - -	7
Squamous-celled carcinoma of cervix - -	2
,, ,, vagina - -	1
,, ,, vulva - -	1
Adeno-carcinoma of uterus - - -	4
,, ,, vagina (secondary) -	1
Mucous polypus - - - -	1
Erosion of cervix - - - -	2
Syphilitic ulcer of vulva - - -	1
Urethral caruncle - - - -	1
Tubercular peritonitis - - - -	1
Blood clot, debris, normal tissue, &c. - -	10
Total - - - -	84

In the above table all forms of endometritis have been grouped together. In attempting to classify them one is met by two great difficulties, one indeed dependent on the other. First, although many principles of classification have been put forward, there is none which has received general acceptance. Secondly, morbid conditions of the uterine mucous membrane do not fall into separate classes, distinct like watertight compartments. The same specimen presents

Digitized by Google

most commonly several distinct variations from the normal, which it is impossible to sum under one descriptive title. In consequence, different observers, even when attempting to classify on the same principle, would furnish different tables of results from an examination of any given series of slides.

I therefore have to content myself with certain descriptive terms, recognising that as a principle of classification they would be logically inadmissible, since they are neither exhaustive nor inclusive. The name in each case merely states the most striking feature of the specimen :—

TABLE II.—CASES OF ENDOMETRITIS.

Hypertrophic or glandular (including cystic) -	30
Interstitial - - - - -	4
Simple - - - - -	15
Polypoid - - - - -	1
Hæmorrhagic - - - - -	1
Total - - - -	51

The term "*hypertrophic*" or "*glandular*" is applied to those specimens which show an undoubted increase of glandular tissue, whether the glands show dilatation or not. It will be seen that three-fifths of all the specimens fall under this head. Naturally, they present great variety. In some of them the glands are merely increased in number, but are quite normal in appearance. In others, there is a distinct proliferation of epithelium, forming tufts, protruding into the glands. In others, again, the glands show marked dilatation as if by the collection of secreted material.

These various forms have all been illustrated in Dr. Purefoy's Clinical Report of the Hospital for 1902–3. In certain of the cases—three in number during the present year—the dilatation of the glands was of such a degree as to merit the classification "cystic endometritis."[1] This condition has been

Digitized by Google

regarded by some as a distinct form of disease, and even as an intermediate stage between endometritis and malignant disease. It is true that the clinical features are somewhat distinctive, and in particular, recurrent hæmorrhage is a marked symptom. On the clinical side, therefore, there is often a suggestion of malignancy, and in the three cases under review, as well as in some other cases which have come under my notice, the question of malignancy was prominent in the mind of the physician in charge of the case. I do not at all agree, however, that the condition is a step in a change towards malignancy. Malignant changes in the endometrium are marked by excessive epithelial proliferation and diminished function, whereas in cystic endometritis the epithelial growth rather lags behind in comparison to the amount of secretion. That the dilatation is due to an excessive secretion or to a blockage of the duct of the gland is suggested by the fact that the larger the cyst the flatter are the cells lining it. In the same section one finds all the stages between normal glands lined with columnar epithelium and cystic spaces lined with almost flat cells. In very few cases of genuine adeno-carcinoma of the uterus have I seen any tendency towards cystic forms of gland.

The term "*interstitial*" has been applied to those specimens in which increase of the connective tissue was marked and change in the glands inconspicuous. The number of cases falling under this head was relatively small.

Fifteen cases are described as "*simple*," though the term is open to objection. The terms "*septic*" and "*diphtheritic*" have been applied by others to this condition. The noticeable feature is the inflammation varying greatly in degree, but unaccompanied by productive changes either in the glands or in the connective tissue. In some cases there is merely congestion of the part with some degree of leucocytic infiltation. In others the change is so severe as to produce necrosis, and

Digitized by Google

the curetting may be a mass of necrotic material mixed with cellular exudate. All stages between these extremes are to be found.

One case is described as "*polypoid.*" In it there was a marked increase of the superficial epithelium forming tufted polypoid projections. The epithelium, however, was so regular in its arrangement as to prohibit any thought of malignancy.

One case is described as "*hæmorrhagic.*" In it no change was to be observed except the marked congestion and great infiltration of the tissues with blood. Of course, in many of the cases hæmorrhagic infiltration was noticeable, but in this case it was practically the only pathological condition present.

The diagnosis of adeno-carcinoma of the uterus from endometritis by examination of curettings is not always easy. The great majority of cases of endometritis, of course, convey no suggestion of malignancy. On the other hand, where a doubt rises, the condition is probably malignant. In two cases during the year from an examination of the curettings I could not go further than to say that there was a suggestion of cancer. Relying on the clinical signs the uterus was removed, and showed undoubted evidence of carcinoma. It is to be remembered that the change may be much more advanced at one part than another, and that even a careful curetting may fail to bring down fragments showing an advanced condition of disease.

Tumours and operation specimens were examined in ninety-one cases, as follows :—

Digitized by Google

TABLE III.—EXAMINATION OF TUMOURS AND OPERATION SPECIMENS.

Epithelioma of vulva	2
Adeno-carcinoma of vulva	1
Epithelioma of cervix	8
Adeno-carcinoma of uterus	5
Endothelioma of uterus	1
Fibro-myoma of uterus	26
Mucous polypus	6
Extra-uterine pregnancy	6
Pyosalpinx and salpingitis	8
Dermoid of ovary	3
Cyst of ovary	15
Carcinoma of ovary	2
Endothelioma of ovary	1
Fibroma of ovary	1
Cast from bladder	1
Abortion	1
Fibroma of groin	1
Fistulous tract	2
Adeno-carcinoma of breast	1
Total	91

There were some points of interest in the early history of one of the cases of epithelioma of the vulva. On the first occasion in which the patient presented herself, there was a small, hard-based ulcer on the labium. Part of it was excised and examined. No evidence of epithelial infiltration could be found, but relying on the fibrosis and endarteritis which were present, I suggested that the ulcer might be syphilitic in origin. Under iodide treatment it disappeared, but seven months later the patient returned with a larger ulcer. Microscopic examination showed typical squamous cancer. I am at a loss to know whether this was a case of cancer developing in a syphilitic ulcer or if it was malignant from the beginning.

Digitized by Google

Adeno-carcinoma of the vulva, of which one case occurred, is by no means a common disease. It is supposed to originate in Bartholin's glands. The present tumour was about the size of an egg, occupying one labium. Microscopically it consisted of masses of epithelial cells, separated into groups by thin fibrous bands, the groups in some places being glandular in appearance. A secondary tumour, exactly similar in structure was removed from the groin.

One of the cases of carcinoma of the uterus presented certain peculiarities. There was a definite patch of ulcerous growth on the wall of the vagina, which naturally attracted notice. A fragment submitted for examination revealed adeno-carcinomatous structure. A curettage fragment from the uterus showing similar pathological changes, the uterus and vagina were removed. The uterus was found to be extensively diseased, and some small nodular subserous fibroids were infiltrated. The case presents, therefore, three points of interest:—(1) The occurrence of adeno-carcinoma in a fibroid uterus; (2) the infiltration of the fibroids by the disease; (3) the implantation of the growth on the vaginal wall. A case exactly similar in the last particular is recorded by Cullen,[1] and the picture he gives exactly represents the condition as we saw it.

In two of the five cases of adeno-carcinoma of the uterus there were fibroids present, whereas in none of the cases of epithelioma of the cervix were there fibroids. This proportion between adeno-carcinoma and fibroid is almost identical with that observed by Mr. Bland Sutton, who in twenty-three cases of adeno-carcinoma found fibroids present in eight.[2]

The specimen of endothelioma or perithelioma of the uterus showed the organ uniformly enlarged with some fibroid induration. Sections of the endometrium revealed nothing abnormal. Certain small nodules under the peritoneum, however, attracted attention. Microscopic examination of

Digitized by Google

these, and of the serous surface generally, showed masses of fairly large flat cells, arranged in a somewhat columnar manner, and infiltrating the muscle bundles. This condition was quite general over the whole fundus, and can hardly be explained otherwise than as a malignant growth originating in the peritoneum.

Among the 26 fibroids met with seven had undergone marked secondary changes. In several others there were minor degrees of œdema or slight cystic changes. Of the seven, five had undergone softening—grey necrobiosis, one red degeneration, and one sarcomatous metamorphosis.

Red degeneration is a comparatively rare condition, usually associated with pregnancy. In it the tissue turns a pink or deep red in colour, often presenting a close resemblance to raw beef-steak. The pigment is derived from broken-down blood corpuscles, and the change is probably due to a sudden stoppage of a rich blood-supply. In the present case the red colouration was slight. A much more extreme case was exhibited to the Obstetrical Section last December by Dr. Kinkead and myself.

The case of sarcomatous change in fibroids is of special interest, since the possibility of this condition has often been denied. In the present specimen several fibroids are to be seen. Some of them show no change except ordinary necrobiosis. The larger tumour at the fundus, however, was bright red in colour, and microscopically showed little trace of muscle or fibrous tissue. It consisted of mixed cells. The growth was infiltrating one broad ligament.

Only three dermoids came under notice. In none of them was there other structure than skin, with an appended mass of hair and grease.

Two cases of carcinoma of the ovary occurred, differing considerably in type. One specimen (A. H.) is very large, some ten inches in diameter, and semi-solid. Part of it is

Digitized by Google

like an ordinary multilocular ovarian cyst in appearance, but part presents a solid, though soft, mass. It is in this part that the malignancy is best marked; microscopically it consists of masses of irregular epithelial cells with little glandular arrangement.

In the other case (J. K.) the disease is bilateral and the specimens are much smaller, four or five inches in diameter. The tumours are quite solid, and microscopically have a close resemblance to the first case. The occurrence of two cases of carcinoma of the ovary out of eighteen tumours of the ovary is in support of recent researches in the pathology of the organ, and is an interesting comment on the view still held by some teachers on the rarity of the disease. In the new edition of his book on *Tumours* (p. 515), Mr. Bland Sutton starts the discussion of carcinoma of the ovary with the remark—"Primary cancer of the ovary is a rare disease." This is not our experience at the Rotunda. Moreover, Norris, Leopold, and others have shown, by careful examination of ovarian cysts, that a much larger proportion of them than is generally supposed are, at any rate potentially, malignant.

Endothelioma of Ovary.—These specimens were from a girl of twenty-one, treated some weeks previously in a general hospital for ascites, regarded as due to tubercular peritonitis. The abdomen was opened in the Rotunda Hospital, and the peritoneum was found studded everywhere with small white nodules, not unlike tubercles. The ovaries, which were removed, presented a curious appearance. Each ovary was the site of origin of a papillomatous growth, somewhat resembling a bunch of grapes. The nodules varied in size from that of a pea to that of a grape, and each of them contained in the middle a small cyst-like cavity. Microscopically, the tissue was found to consist of large flat cells, with slight thread-like stroma, the cells being indistinguishable from those of the peritoneum covering the tumours. The nodules scattered

Digitized by Google

over the general peritoneal surface were of exactly similar structure. The tumours were regarded as endotheliomata, originating in the peritoneum. Their resemblance, microscopically, to the case described as "endothelioma of the uterus" was very marked.

TABLE IV.—BACTERIOLOGICAL EXAMINATION OF UTERINE LOCHIA IN TWENTY-FIVE MORBID CASES, SHOWING THE ORGANISMS ISOLATED OR OBSERVED.

Diplococcus A - - - - -	10
„ B - - - - -	10
Streptococcus - - - - -	2
Bacillus coli - - - - -	5
Unrecognised bacilli - - - -	5
„ cocci - - - -	2
Saprophytes - - - - -	2
Negative - - - - -	5

The lochia was obtained in every case by Döderlein's method. In the laboratory it was examined by smears and by cultures. In ten cases, where organisms were seen in the smear, they failed to grow. In these cases it cannot be claimed that the organism was identified.

The organism "diplococcus A" was described briefly in last year's report. It closely resembles the gonococcus in appearance, and in its tendency to be situated in the cells, but, unlike the gonococcus, it varies in its reaction to Gram's stain. I have had great difficulty in getting it to grow. In the two or three instances, where primary cultures were obtained, attempts at sub-culture entirely failed.

Diplococcus B is probably the pneumococcus.

The absence of all staphylococci from the list is interesting.

One of the cases of streptococcal infection was very severe, ending fatally; the other recovered after an illness of some four weeks' duration.

Digitized by Google

Pus or other infective material was examined as follows :—

(*a*) Stitch abscess in perineum—*St. aureus*.

(*b*) Abscess of abdominal wall—*St. aureus ; Diplo. pneumoniæ*.

(*c*) Abscess of abdominal wall—*B. coli ;* an unknown coccus.

(*d*) Abscess of abdominal wall—*St. albus*.

(*e*) Necrotic tissue from epithelioma of the cervix—*Streptococcus ; St. aureus ; St. albus, &c.*

(*f*) Abdominal wound—*St. albus*.

g) Vaginal discharge—*Streptococcus ; Diplo. pneumoniæ*.

(*h*) Abdominal wound—*St. albus*.

(*i*) Vaginal abscess—*St. albus*.

These results may be tabulated as follows :—

TABLE V.—BACTERIOLOGICAL EXAMINATION OF PUS OR OTHER INFECTIVE MATERIAL SHOWING ORGANISMS ISOLATED.

St. aureus	3
St. albus	5
Streptococcus	2
Diplococcus pneumoniæ	2
B. coli	1
Unrecognised	2

One patient suffering from tuberculosis of the bladder was for some weeks under vaccine treatment, controlled by observations of the opsonic index. She reacted excellently to the treatment, her index rising from .6 to 1.2, and after a temporary fall remaining about that figure. At the same time her health improved, and the pain, which had been very troublesome, disappeared. The urine, which at the beginning of treatment contained much pus and plentiful tubercle bacilli, became much cleaner, and we failed to find any tubercle bacilli. Unfortunately, the patient left hospital before anything more than alleviation could have taken place. In several cases an estimation of the opsonic index was made as an aid to diagnosis of tubercular conditions.

Digitized by Google

During the year the following specimens have been added to, or have been put in preparation for, the Hospital Museum:—

(1) *Adeno-carcinoma of vulva*, described above.

(2) *Endothelioma of uterus*, described above.

(3) *Fibromyoma of uterus*, undergoing sarcomatous degeneration.

(4) *Tubal pregnancy*, showing embryo *in situ*.

(5) *Carcinoma of ovary*.

(6) *Endothelioma of ovary*.

(7) *Sarcoma of vagina* (lent by Dr. Jellett). Fully described to the Academy in 1904 (Proceedings, 1906).

(8) *Red degeneration of fibroid*. A description of this specimen was given to the Obstetric Section of the Academy, December 14, 1906.

[1] Cancer of the Uterus, London, 1900, p. 415, *et seq.*

[2] Journal of Gynæcology of Obstetrics of the British Empire, July, 1907.

Dr. Neill congratulated Dr. Hastings Tweedy, the Master of the Rotunda Hospital, on the extent of the report and the work done. In the case of unavoidable hæmorrhage, he thought it would have been better to have brought down a leg and to have allowed the patient to deliver herself.

Dr. Jellett referred at some length to a case of concealed accidental hæmorrhage to which he had been called from the Rotunda some ten years before. He had found a patient with a pulse of anything above 120, and a uterus which had increased in size in a few hours from the umbilicus up to near the ensiform cartilage, and with the diagnosis of concealed accidental hæmorrhage on her face. He performed Porro's operation, and found the placenta floating about in the uterus, which was full of blood. At a subsequent discussion his treatment was objected to on the ground that a large number of cases of concealed accidental hæmorrhage had been successfully treated by other means. If that were so, then Porro's operation was unjustifiable, but he was of opinion that the cases referred to were in reality cases of external hæmorrhage. Dr. Tweedy stated that the case

Digitized by Google

in the report was the first case he had ever seen, and he (Dr. Jellett) had made out some statistics on the matter, which showed that up to the year 1896 only five cases had occurred amongst 43,000 patients in the practice of the Rotunda. He believed Dr. Tweedy's statement to be perfectly correct, that such cases were of extreme rarity, and that, considering the very severe mortality in them, it was a mistake to try to promulgate the idea that they were common, and that they were amenable to treatment suitable and excellent in the case of external accidental hæmorrhage. Dr. Tweedy had a theory that a plug in the vagina would compress the uterine arteries; that theory was susceptible of proof, as, if the uterine arteries were compressed, the child would die, and that the child did not always die was proved by a case in Dr. Tweedy's present report. If a uterus from which no blood was escaping went on increasing in size he thought it was fallacious to suppose that a plug would make any difference, and the only thing that could be said for it was that it might bring on labour. He suggested that the condition was to all intents and purposes identical with that of internal hæmorrhage anywhere else, and consequently the correct treatment was to get to the bleeding point from above or from below and stop the hæmorrhage, at its point of origin.

Professor Alfred Smith regretted he could find no advance in the teaching of midwifery in the report, or that the recognised methods of treatment were not set out in greater detail. As a teacher of students he would be glad to know why Dr. Tweedy altered the old-established division of *ante-partum* hæmorrhage. Again, he thought the results of the standard of morbidity were extremely remarkable. The Rotunda Hospital estimate made it a remarkably good standard, whereas the British Medical Association standard made it the same as last year. The question of which was the better standard was of importance to anyone estimating statistics. Then, in the treatment of abortions, it was not stated what kind of active interference was resorted to. He made the criticisms with a view to eliciting greater detail for the benefit of those who, like himself, would turn to it for information and enlightenment. He congratulated Dr. Tweedy on the excellent results which had been achieved.

Sir William Smyly said that, while he recognised the great

Digitized by Google

difficulty in compiling tables, he agreed with Professor Smith as to the advisableness of having more details in regard to interference in abortion, particularly as to the number of cases in which interference was necessary, and the nature of the interference. He regarded the introduction of separate cots for infants as a matter of great importance. He had never seen a case of death from labour shock in the report before, nor had he met with a case. He had, however, seen two cases in which patients very nearly died without any hæmorrhage, ultimately, however, they pulled round, and so he could quite believe that there was such a thing as death from shock after labour. As to his cases of concealed accidental hæmorrhage, it was probable that there had been only one case in the house and Dr. Baggot's case in the extern maternity. If there was any external hæmorrhage at all it showed that the uterus had some resisting powers, and that therefore that case could not be put in the same class as internal hæmorrhage without any external escape. The latter showed absolute atrophy of the walls of the uterus, and inability to resist the pressure of blood. He did not see how plugging the vagina could save the life of the person in such a case. He considered that Porro's operation was the less dangerous. He wondered if the increase in the mortality of *post-partum* hæmorrhage was connected with the modern method of treating the third stage of labour. It showed the care that had to be exercised in watching the uterus, as there was a risk of hæmorrhage going on which they did not either see or feel.

Sir A. V. Macan said he would like to have the dates of cases given for easy reference. In his memory the extern cases had increased from 70 to 2,254. He thought it was a great pity that they could not refer to the same standard of morbidity as the Continental hospitals. He had no doubt that there were many cases of slight concealed hæmorrhage that were never diagnosticated. In cases of *post-partum* hæmorrhage, any treatment that omitted opium as a stimulant was not quite up to modern views. It was not, he thought, possible in an annual report, such as they were considering, to enter into the details of treatment in every case.

Sir William Smyly explained that his observations as to concealed accidental hæmorrhage applied only to severe cases.

Dr. Spencer Sheill said it seemed a peculiar thing to him

Digitized by Google

that a patient in a healthy condition could die of labour collapse. The three cases referred to by Dr. Tweedy bore a strong resemblance to each other in respect of causation. He did not think shock was the correct term. If the normal shock of labour acted on a patient in an unhealthy condition, it was not the shock that was the primary cause of death. He thought it would be better to put such cases down as death from unknown causes rather than under the ambiguous term of shock.

Dr. Ashe said he thought they could greatly improve their methods of giving morphin salts. There were derivatives of morphin which were not so depressing as the hydrochloride.

The Chairman said the occurrence of mammary abscess in the case of septicæmia was of great interest, as it was a rare accompaniment of the condition. In the other case of septicæmia it would occur to him that probably rupture of the uterus had taken place. He found it hard to understand what circumstances in a case of hydrocephalic head could have justified version. He thought it was a pity that they had not a standard of morbidity identical with the Continental for purposes of comparison. He doubted if so much benefit had followed the discarding the use of the blunt flushing curette, and douching as was expected. He agreed with the Master of the Rotunda that pubiotomy would go a long way to rendering the induction of premature labour unfashionable; but he still thought that cases would be found for a while longer in circumstances which would justify induction.

Dr. Hastings Tweedy, in reply, said he was not responsible for the diagnosis in cases of extern maternity. The point which Dr. Jellett had made in regard to concealed accidental hæmorrhage was a particularly good one. If he stopped the hæmorrhage in the uterine arteries the child died because he stopped the blood that went to the placenta, that was an apparently weak point in the theory; but he could say that he had never yet failed to stop hæmorrhage coming through a plug in the vagina, and he had never known of hæmorrhage pouring out over the plug. He had shown over and over again that there was no blood collected in the uterus when once the vagina was plugged. The plugging of the vagina caused a considerable amount of shock to the patient through pressing on the cervical nerves, and he regretted to say that patients often did not get better, in spite of the plugging of the vagina, even though the hæmorrhage

Digitized by Google

ceased; nor had he ever had a living child born after plugging the vagina in the manner recommended as treatment for accidental hæmorrhage. He thought it was understandable how the uterine arteries could be stopped, when there was a plug pressing up with a binder pressing down the uterus. He dreaded the alternative of cutting out the uterus from a woman suffering from shock. As regards details of cases, where he had glossed over a subject, it would be found that the method had been given in a former report; if the treatment had been altered in any way it would be referred to in the new report. He had been led to suppose that he had hit on an improved standard of morbidity, as it showed a high percentage when the hospital was really unhealthy, and a low percentage when the hospital was in an extremely healthy state, as in the present year. He could assure the Section that there was no more regularity amongst Continental authorities than in their own country. The method standardised by the British Medical Association had the merit of being simple. As regards the cases of death from labour shock, Dr. Sheill would see that Dr. Rowlette could find nothing to account for death; and, though some other condition might have produced the shock, it was the shock that killed the patient. Sometimes the retention of the placenta gave rise to profound shock quite apart from hæmorrhage. He had therefore made it a rule that the sister should constantly take the pulse and examine the aspect of the patient while the placenta was in, and summon the Assistant-Master the moment the least change was seen, whether there was hæmorrhage or not.

Digitized by Google

REPORT OF TWO SUCCESSFUL CASES OF CÆSAREAN SECTION, WITH OBSERVATIONS.

By C. YELVERTON PEARSON, M.D., F.R.C.S.;
Professor of Surgery, Queen's College, Cork;
Surgeon to the County and City of Cork Victoria Hospital for Women and Children, &c.

[Read in the Section of Obstetrics, May 24, 1907.]

Cæsarean section is an operation which up to the present time has very rarely been performed in Munster. Apart from this fact, to which I shall again allude, and the general interest of the subject, the cases which I am about to report present some features of special interest which induces me to bring them under the notice of this section of the Academy.

Case I.—*Radical Cæsarean Operation for Obstruction due to large Pelvic Fibro-myoma.*—Mrs. M. D., aged thirty-five years, farmer's wife, recommended by Dr. Reid, of Bandon, consulted me on February 23, 1906.

She was a woman of rather sallow and somewhat anæmic appearance, but had always been healthy up to date of marriage, which took place on July 29, 1905. Menstruation, which had previously been regular, had ceased after marriage. According to her first account there had been no menstrual period since the early part of July, but she subsequently stated that she was unwell about a week after marriage.

Two months ago she noticed a swelling in the hypogastrium to the right of the middle line; about a month after she suffered from intermittent pain, of a darting character, in the same situation, which had become more constant for the past ten days, and for which she consulted Dr. Reid, who, on examination, found a large tumour in the pelvis, but was unable to detect any sounds of the fœtal heart. There had not been any sickness, and the woman had no suspicion of pregnancy.

Digitized by Google

On Examination.—The breasts were found to contain milk, and presented all the characters associated with a first pregnancy. The abdomen was considerably enlarged, and on palpation a small, hard tumour, about the size of a hen's egg, was felt in the right iliac region, a few inches above Poupart's ligament. There was a sensation of marked resistance in the hypogastric region produced by a tumour, and a general fulness was detected, dull on percussion, extending two inches above the umbilicus, which corresponded in feel with what might have been a pregnant uterus.

On vaginal palpation a large, apparently solid, tumour was felt through the anterior vaginal wall, which, though very fixed, could also be felt by the hand placed above the pubis. The cervix was lying behind the tumour, and was so high up that it could be reached with difficulty. On auscultation, though a soft systolic souffle was heard over the hypogastrium, no sounds of the fœtal heart were perceptible. The patient had not experienced any distinct sensation of quickening.

A problematical diagnosis of pregnancy, associated with pelvic fibro-myoma, was arrived at, which was confirmed on further observation of the patient while in hospital. She was sent home on March 3 with instructions to return during the first week in May.

Shortly after her return home the patient experienced distinct sensations of quickening, and when visited a few weeks afterwards by Dr. Reid, he was able to hear the fœtal heart sounds distinctly.

The patient returned on May 7, and was re-admitted to the North Infirmary. There had been no change in her general appearance save those produced by the more advanced condition of gestation. The pelvis was so completely blocked by the presence of a large fibroid tumour that it was with extreme difficulty the os uteri could be reached, lying behind the tumour and high up in the hollow of the sacrum. It was evident that delivery could not be accomplished in the natural way. So far as I could calculate from the woman's statements the onset of labour would be likely to occur during the second week in May. I determined to anticipate this by operation, and made all the necessary arrangements.

On careful palpation of the abdomen the position of the fœtus was found to be as follows:—The body was placed obliquely, the dorsal aspect to the front, and the head being placed upwards and to the right of the fundus. The position of the placenta

Digitized by Google

could not be determined by palpation, but was believed to be posterior. The fœtal heart sounds were quite distinct and best marked to the right of the umbilicus.

All arrangements were made for operation, which was performed on Saturday, May 12, in the presence of the other members of the staff and several medical friends. I was assisted by my colleague, Dr. Henry Hobart, the anæsthetic was administered by Dr. Hegarty, whilst Dr. Richard Byrne stood ready to receive the child. The operation presented no feature of difficulty. The abdomen was laid open by a five inch incision, the parietes were pressed backwards, the uterine walls were incised till the membranes were exposed, and the incision was then increased to about four and a half inches in length in an upward direction with scissors; the membranes having been divided, the child was seized by the neck and extracted without difficulty, the head being delivered first. The cord was divided between two pairs of compression forceps, and the child, a well-developed boy, was handed over to Dr. Byrne.

The uterus was then seized and drawn forwards through the abdominal wound, and immediately began to contract. On making firm traction on the uterus in an upward and forward direction the large pelvic tumour was drawn out of the pelvis. The remainder of the operation was completed as an ordinary supra-vaginal hysterectomy, silk ligatures being applied, the stump and peritoneum over it being sutured with iodised catgut.

The bleeding, which was very free during the division of the uterus, practically ceased after delivery of the child, and gave no further trouble. The placenta was left *in situ*, but very soon became separated by the contractions of the uterus. The ovaries were not removed.

The woman and her child progressed in a most satisfactory way, and both left the hospital on June 9.

Case II.—*Ordinary Cæsarean Section for Spondylolithesis and Contracted Pelvis.*—Mrs. S. D., aged thirty-three years, consulted me on December 27, 1906, by the advice of Dr. O'Meara, of Skibbereen, who had previously written to me about her, and expressed the opinion that he regarded it as a suitable case for Cæsarean section.

The patient was of healthy aspect and of small proportions,

Digitized by Google

though well formed. Judging by her appearance at the time I should have thought that her height did not exceed 4 ft. 6 in., though when she was measured some weeks after operation her height was found to be 4ft. 9 in. She had marked lordosis, and the abdomen was unusually prominent even for advanced pregnancy.

History.—She was married four and a half years, and had no living children, though she had three confinements. Delivery at the first was accomplished by turning followed by craniotomy. At the second she was delivered with great difficulty by forceps of a dead fœtus, but the exact period of gestation was not known. On the third occasion she was delivered naturally at about six and a half months, and the child was said to have lived a few hours. This was in April, 1905. It appeared from her statements that she had now reached full term, and that labour might come on at any moment, though she had been advised to come to me at an earlier date. I advised her to immediately go into hospital, but it appeared that she had no intention of submitting to any severe operation, and wanted me to undertake the delivery *per vias naturales*, which I firmly declined to do. She wanted to return home immediately, but finally consented to go into hospital and think over the matter till the following day. She left my house on the understanding that she would go into hospital, but on getting there changed her mind and determined to stay somewhere in the city for that night. About 11 p.m. her husband presented himself at the hospital saying that she was in labour and asking to have her admitted. I was communicated with by telephone, gave instructions for her admission, and ordered a bromidia draught and quarter grain of morphine hypodermically, with the understanding that I would be summoned if labour continued. The pains ceased soon after her admission, and she passed a good night. On the next day preparations were made for operation, but I determined not to operate until the day following unless obliged to do so, in order that more methodical preparatory treatment could be carried out. On examination *per vaginam* the pelvis was found to be small and imperfectly developed, but no systematic measurements were made, either then or subsequently.

Cæsarean section was performed at 10 a.m. on December 29, in which I was assisted by my colleague, Dr. Hobart, the anæsthetic

Digitized by Google

(C.E. mixture) being administered by Dr. Michael Cagney. In less than five minutes from the commencement of the operation a healthy male child was extracted, which at once cried lustily, and weighed 6½ lbs.

The placenta was partially divided before the membranes were reached, owing to its occupying an anterior position, and though the bleeding was free at the moment it practically ceased when the child, which lay in the left occipito-anterior position, was extracted. The moment this was accomplished the uterus spontaneously delivered itself through the abdominal wound. This was easily explained by the prominence of the lower lumbar vertebræ, which were now found to be on a level with the anterior abdominal wall. As the uterus did not contract very rapidly, the placenta and membranes were separated and extracted. The uterus did not even then seem disposed to contract satisfactorily, and, as the patient seemed at the moment to suffer from shock, I douched both the exterior and interior of the uterus with hot saline solution, to which it at once responded in such a marked manner that it became quite anæmic in appearance. The uterine wound was closed by two rows of continuous suture of iodised catgut, and the abdominal wound was sutured in three successive layers.

The case pursued an uneventful course, the subcuticular suture was removed on the fourteenth day after operation, and both mother and child left hospital on January 19, 1907, twenty-one days after operation.

Observations.—The special points of interest in the preceding cases have already been sufficiently alluded to. It will be noticed that in both cases, acting on the experience of Mr. Howard Kelly, I appointed a particular time for operation, and did not wait for the onset of labour, though in the second case I was very nearly anticipated. From the experience gained in these cases I would follow a similar course if possible in future cases.

Further, I think it is unnecessary to stop during the course of the operation, previous to the extraction of the fœtus, to arrest any uterine or placental bleeding. Firm

Digitized by Google

pressure of the assistant's hands placed on the abdominal wall on either side of the wound will sufficiently control it. After extraction of the child it does not appear that there is much danger of hæmorrhage, as if the uterus does not take on action immediately it can be stimulated by extracting the placenta and hot douching.

I should like to advise all those practitioners who meet with cases which are likely to require surgical assistance to see that the patient is placed in suitable surroundings, and all necessary arrangements are made for operation before the onset of labour, even though it may be thought wiser not to operate till the pains have commenced.

The great rarity of Cæsarean section in the South of Ireland can be easily explained on the following grounds, viz.:—(1) Cases of pelvic deformity of such a degree as to necessitate such an operation are comparatively few. (2) In the majority of cases of difficult labour among the poorer classes the medical attendant does not get an opportunity of recommending such an operation, as his services are not sought for at a sufficiently early period. I have no doubt with the improved education which midwives receive, and an increased confidence in surgical measures, the number of such operations in the future will increase.

Digitized by Google

ABSTRACTS.

SECTION OF OBSTETRICS.

President—R. D. Purefoy, M.D., F.R.C.S.

Sectional Secretary—Henry Jellett, M.D., F.R.C.P.I.

Friday, November 16, 1906.

The President in the Chair.

Sir William Smyly showed a fibro-cystic tumour of the broad ligament weighing thirteen and a half pounds. He said that such tumours must be rare, as this was the first he had met with.

Sir Arthur Macan asked whether the fluid from the tumour coagulated on being allowed to escape. The feeling of fluid in the tumour was an extraordinary one.

The President recalled a specimen shown to the Academy some years ago, on which occasion Sir Arthur Macan remarked that surely there was fluid in it. A section was made at once and there was not a trace of fluid. He mentioned the case as showing that sometimes a tumour was met with which imparted a misleading sensation to the finger on examination.

Dr. E. H. Tweedy showed (*a*) tubal pregnancy, (*b*) perithelioma of uterus, (*c*) fibroids undergoing sarcomatous degeneration.

Dr. Rowlette said that perithelioma had not been described until within the last few years. It was extremely likely that the tumour had been seen previously, but had been unrecognised. He recalled a case of tumour of the ovary presenting remarkable resemblances to that before them, which had been put before the Academy the previous year by Dr. Tweedy. The fibroid tumour was interesting on account of recent discussion as to whether such change really took place. From the naked-eye appearance one would not judge it to be sarcoma, but in the broad ligament there was a mass of softened tissue which looked extremely malignant. A section from the upper part of the tumour showed no fibrous tissue at all, but a mass of sarcoma cells. A section from the lower part of the uterus showed simply

Digitized by Google

a degenerating mass of fibrous tissue. The case was, he thought, correctly described.

Dr. Kidd asked if there was any method of knowing, before a section was made whether the tumour was of a malignant nature or not; otherwise, except in extreme cases, the operator would run a great risk of infecting his patient.

Sir W. Smyly thought that the splitting of such tumours was not free from risk. Within the last three years he had lost a patient through pus infection from an abscess which had been burst during operation.

The President said that the bisecting of the uterus in some cases allowed them to secure the uterine vessels and avoid injuring the uterus. He recalled a case of removal for fibroid of the uterus. There was nothing in the aspect of the uterus to suggest that it was the seat of malignant disease. The patient made a good recovery from the operation, but when the uterus was examined afterwards it presented two large foci of malignant disease. He felt that if he had bisected the uterus he would have realised the state of affairs, but he would have run the risk of infecting the patient.

The President read a short Introductory Address.

Repeated Twin Abortions and Ventro-suspension.

Dr. Spencer Sheill then read a paper on repeated abortion and ventro-suspension.

A woman, aged about thirty years, married four years, has had four abortions, all at about the tenth week, the first one being twins. There is a family history of twins—she has twin sisters. On the 3rd of May, 1905, he curetted the patient for an incomplete abortion, when she came under his care for the first time, and at that time he made the diagnosis of acute retroflection with a fibroid, and recommended operation as she was very desirous of having a living child. She agreed, and on the 23rd of the following June he removed a pedunculated fibroid about the size of a hen's egg, which was attached to the fundus; and did a ventral suspension. The patient menstruated normally on July 19th and August 21st, her husband being away in the country. He returned—and cohabited with her for the first time since the operation—on September 1st, 1905, with the result that Dr. Sheill delivered the patient of a child, which showed every

Digitized by Google

evidence of being full term, on the 16th of June, 1906, so that the conception must have taken place in or about September 16th, 1905—*i.e.*, sixteen days after the husband's return. But on the 21st of October, 1905, exactly two calendar months after the last menses, the patient had a uterine hæmorrhage, and with it came away an ovum of about six weeks' development. The hæmorrhage was not very profuse, and soon ceased. There was no pain, so active interference was withheld. The patient was taking potassium chlorate at this time. No further menses occurred, and, on examination early in January, 1906, Dr. Sheill diagnosticated a "uterus large enough for four and a half or five months' pregnancy, which might be a mole or a twin of the ovum aborted last October." With regard to the success of the operation, it is interesting to note that the ventro-suspension caused no pain, unusual vomiting or frequency of micturition during gestation; and that there was no dragging on or alteration in shape of the uterus other than a slight dimple at the fundus. The labour was uneventful, and the ventral scar showed no signs of weakness. A vaginal examination a month later showed the uterus to be normally involuted and in perfect position. An enlargement of the thyroid gland has been described in infants born of mothers who have been taking potassium chlorate during pregnancy with a view to prevent abortion. There was no such enlargement in the infant's thyroid in this case.

Sir W. Smyly said he believed the displacement was a cause of complications. He approved of suspension, but many cases of retroversion—especially those which occurred after delivery—got well if treated with a pessary. He had no doubt that the living child was the result of Dr. Sheill's treatment.

Professor A. Smith said he thought the displacement was due to the tumour dragging on the wall of the uterus. Dr. Sheill had acted wisely in removing the tumour and preserving the uterus. Of course, one could not say whether it was absolutely necessary to have suspended the uterus. He had removed fibroids from the back of the uterus, and it had righted itself after a time. Cases were well known in which one of the causes of the displacement of the uterus was the weight of a fibroid tumour dragging on it, and he knew of a series of cases of suspension of the uterus where pregnancy did not occur. He was a believer in suspension, but it was difficult to decide which method to follow.

Digitized by Google

Dr. Jellett said that for the last couple of years he had been doing a considerable number of radical cures of backwards displacement of the uterus, and of them five patients had been confined in hospital after operation. In no case was there any trouble. He was inclined to the belief that, after a simple ventro-suspension, if the patient became pregnant, a return of the displacement was likely to occur. He had found no difficulty in Alexander's operation, and in no case had the immediate results been otherwise than excellent. He was therefore in favour of the Alexander operation in simple uncomplicated cases of retroversion of the uterus. There were, however, a number of cases in which it was entirely inapplicable, among which Dr. Sheill's case was, he thought, included.

Sir A. Macan said the paper opened up the whole question as to whether every case of retroflection was to be operated on. They should try to settle the indications, and until this was done he preferred treatment with the pessary. He considered the Alexander operation more reasonable than fixation against the abdominal walls. When the cornu of the uterus had been fixed almost into the internal abdominal ring, if the woman became pregnant, parts which were almost touching became stretched five inches, and he confessed that it appeared very strange to him that they should go back again after such stretching. The whole question was not near solution, and he was anxiously looking to some experience that would help him to make up his mind as to what cases he should operate on, and the best method.

Dr. Ashe said it was impossible to say if Alexander's operation would be a success until one had ascertained by inspection the condition of the round ligaments.

Dr. FitzGibbon said that vaginal shortening of the round ligaments was not often mentioned, although it was easy to perform. He had seen a case two months afterwards, and the uterus was perfectly in place. By such a method an abdominal scar was avoided; but, if there had been pelvic inflammation, there would probably be adhesions between the uterus and the pelvic walls, in which case it would be necessary to open the abdomen.

Dr. Hastings Tweedy thought Sir Arthur Macan had taken a rather gloomy view of the many disastrous possibilities of

Digitized by Google

ventro-suspension. It never occurred to him (Dr. Tweedy) to look forward with the least anxiety to pregnancy or labour following this operation. If a sufficient number of stitches were not placed in the uterus, a relapse would follow delivery. He thought therefore the suspension should be made by two separate sutures. One could never say that occlusion of the tubes was not present until the abdomen was opened, and for this reason he considered Alexander's operation much inferior to the ventral suspension.

Dr. Horne thought that if there were adhesions they were bound to interfere with them; but, if not, he was inclined to replace the uterus and insert a pessary.

The President said that no single method could be considered free of the possibility of giving rise to complications. He remembered the case of a woman who had been operated on by Mr. Alexander himself, and who had aborted three times in the two succeeding years. It was obvious that the round ligaments might stretch and allow the recurrence of the displacement. The peritoneal adhesions which were formed in ventro-suspension might also stretch and give rise to various risks.

Dr. Sheill then replied.

The following card specimens were shown:—

Dr. E. H. Tweedy—(*a*) adeno-carcinoma of vulva; (*b*) epithelioma of vulva; (*c*) adenoma of uterus; (*d*) epithelioma of cervix; (*e*) myomatous uteri, 8; (*f*) pyosalpinx and salpingitis, 6; (*g*) ectopic pregnancies, 2; (*h*) ovarian cysts, 10.

Friday, December 14, 1906.

The President in the Chair.

New Form of Pessary for Use in Uterine Prolapse.

Dr. Seymour Stritch said he had been obliged to devise a pessary which would support the uterus, in a patient aged eighty, without pressing on an ulcerated cervix. He accordingly had a pessary made in the form of a ring, supported by a vaginal stem, from the vulvar ends of which tapes are attached, for fixation, to a waist band. The ring can be hinged against its stem to facilitate its insertion, and when in position can be locked at the required angle to the stem. The uterus hangs within the ring free of pressure irritation. (Manufacturers—Down Bros., London.)

Digitized by Google

Uterus with Cancer of Cervix and Fundus.

Dr. Henry Jellett showed a uterus with cancer of both cervix and fundus. He said that he showed the specimens rather from their pathological interest than as an operation specimen. One of the indications in the past for supra-vaginal amputation of the cervix was said to be cancer of the cervix, and he thought this specimen showed the untenable nature of such a position. The specimen was also a rare one, and Cullen in his work on cancer of the cervix recorded only half a dozen cases. Cases of cancer occurring at both the fundus and the cervix might be divided into two classes:—First, those in which the two cancers were independent of one another. Such cases were difficult to allocate with certainty, since, unless the two cancers were of a different nature, it was difficult to say that they did arise independently of one another. The mere fact of a cervical and fundal cancer co-existing without macroscopic connection did not afford evidence that the two were dissociated. The second class of case was that before them, in which it was possible to trace definite connection. In the present case, of a patient about fifty-four years of age, he had operated for cervical cancer, and had no reason to suspect fundal cancer. The first thing he saw on opening the abdomen was a slight adhesion of the intestines to the fundus. The operation was a fairly radical one, and he regretted to say the patient was unable to stand it, and died from the shock fourteen hours after. The operation had to be very extensive, on account of the necessity of taking away almost the entire upper third of the vagina. In the specimen before the meeting a fine line of connection could be seen between the two growths, and this presumably followed the lymphatics, traversing the muscular wall from one growth to the other.

Dr. Alfred Smith said the case reminded him of a recent article on how cancer spread. Cases had been found in which the cancer extended not only through the lymphatics, but also by tiny branching tendrils that seemed to grow out from the primary cancer.

Dr. Hastings Tweedy thought it was a great triumph that so much of the vagina had been removed without rupture.

Sir W. Smyly said he had seen the operation performed. It was a very radical one, and it was a great pity the patient had not the strength to stand it.

Digitized by Google

THE CHAIRMAN said the case reminded him of one of his own in which the uterus contained two varieties of cancer—one in the cervix and one deep in the tissue of the fundus, no microscopic or macroscopic connection being between them. The disease in both localities was not very far advanced, and the patient made a good recovery.

DR. JELLETT, in reply, said the operation was performed by Werder's method, as described in Cullen's "Cancer of the Uterus." In spite of the fact that it had been abandoned by its originator, it was an excellent operation for the removal of extensive vaginal infiltration. In the case before them the rectum was free, but the bladder was commencing to be involved, and there was considerable difficulty in separating the vaginal wall from the bladder.

Ovarian Cyst.

SIR W. SMYLY presented a specimen of ovarian cyst. He said the case showed all the characteristics of an ovarian tumour, except that he could not isolate the uterus from the tumour. The uterus moved with the tumour and, though he thought it was ovarian in origin he could not make a positive diagnosis. When he opened the abdomen he saw what appeared to be an ordinary ovarian cyst. He incised it, and let out a quantity of pseudo-mucinous fluid. When he had dealt thus with half a dozen cysts, he enlarged the incision, and found the uterus spread out over the front of the tumour, and the round ligament running over the top of it. The pelvic cavity was almost entirely de-peritonealised. When he had almost completely shelled out the tumour he found it impossible to separate it from the uterus, and, even as it was shown, it was impossible to see any line of separation between the tumour and the uterus, so that one would be almost inclined to think—were it not for the characteristics it presented—that it was a fibro-cystic tumour.

On the motion of DR. ALFRED SMITH, seconded by DR. HASTINGS TWEEDY, the specimen was referred to the Reference Committee for a special report. The tumour was inadvertently mislaid, and could not be examined by the Reference Committee.

Vesical Calculus with Nucleus of Pedicle Silk.

DR. ALFRED SMITH said that about three months after the

Digitized by Google

removal of a large ovarian cyst the patient began to suffer increasing pain during micturition, and her medical adviser was satisfied that she had stone in the bladder. Eventually she came to him. She was so tender that he could not palpate her without an anæsthetic, but when the anæsthetic was administered he found the bladder filled with stone. Having smashed the stone and washed out the fragments he drew out, by the urethra, with the guidance of the finger and forceps, the ligature shown. The natural explanation of how the ligature got into the bladder would be that there was some inflammatory disturbance around the pedicle, but if such were present it would suppose some evidence of pain, but the only pain complained of was that already mentioned.

Dr. Rowlette read, for Dr. Kinkead and himself, a paper on "A Case of Labour Obstructed by Fibroid Tumour: Red Degeneration of the Tumour" (see page 227, *ante*).

The following card specimens were shown:—

Dr. Spencer Sheill—Tuberous Sub-chorial Hæmatomata of the Decidua in an early Abortion.

Dr. Hastings Tweedy—(*a*) Ovarian Cysts, 2; (*b*) Myoma of Uterus, 5; (*c*) Salpingitis; (*d*) Epithelioma of Vulva.

Friday, February 1, 1907.

The President in the Chair.

An Obstetrical Chart.

Dr. Thomas Neill exhibited a chart showing a very convenient method of keeping a record of obstetrical cases.

Dr. Hastings Tweedy, Sir A. V. Macan and the President referred to the importance and value of being able to refer to previous records in obstetrical cases.

Formaline Steriliser.

Dr. Henry Jellett exhibited apparatus for sterilising urethral or other forms of gum-elastic catheters by means of formaline vapour. The exhibit consisted of two instruments—one of which had been brought from Germany by Dr. Gunn, who thought that it had been originally devised by a Japanese; the

Digitized by Google

other Dr. Jellett had made for himself from particulars given by Dr. Gunn. Sterilisation was effected by the constant passage of coal gas, impregnated with formaline vapour through the catheter, which gas was subsequently burnt off in the Bunsen burner, which supplied the necessary heat for generating the formaline. A series of experiments were undertaken by Dr. Rowlette to determine the efficacy of the steriliser, and he reported as follows :—"I have tested the steriliser with cultures of the following organisms—(1) *B. coli communis*, the most common bladder infection; (2) *Staphylococcus aureus*, another common infection; (3) *B. anthracis*, an organism extremely resistant to disinfectants. Experiments were in each case conducted as follows :—An active fluid culture of a couple of days' standing was employed. In this culture an elastic catheter was allowed to stand for ten minutes. The catheter was then placed in the steriliser for half an hour. It was then dipped and rinsed in melted agar, which was immediately poured out into a Petri dish and incubated at blood heat. In no case did any colonies appear. Controls were employed to establish the vitality of the cultures. The method of sterilisation seems very thorough and satisfactory."

Dr. Hastings Tweedy recalled that when the disinfecting properties of formaline were first discussed opinion was strongly against it when vaporised from the solid. If the dry formaline had no sterilising power it must be the coal gas in the apparatus exhibited which acted as the disinfectant.

Sir A. V. Macan said that anything that made a catheter quite safe after using in an infected case was a most important matter.

Dr. Kirkpatrick said that in experiments on the subject of room disinfection formaline was found to have slight penetrating power. Bacteria could be killed close to the opening of culture tubes, but quite a short way down the disinfection ceased abruptly at a definite line. It was not likely, therefore, to penetrate effectively into the catheters for any considerable distance. Dr. Rowlette's experiments were to a certain effect vitiated by the fact that he probably carried formaline on the catheter into the agar solution, and this formaline naturally prevented growth.

Dr. Donnelly drew attention to the possible action of ordinary coal-gas on metallic instruments, and suggested that

Digitized by Google

experiments should be made to find out whether they would be injured or not.

Dr. Jellett, in reply, said he was not disposed to take the view that formaline in the dry state would not cause sterilisation. The larger apparatus would take in a cystoscope, but he had not tried it on metallic instruments. The same objection would, however, stand in regard to them as to the use of the apparatus in disinfecting dressings and sponges—viz., that there would be a certain amount of deposit of formaline left on them which would leave sponges and the like in a too irritating state. This objection did not apply to catheters, as they could be washed in sterilised water, and the formaline thus removed. He quite appreciated Dr. Kirkpatrick's objection, but did not see how it was to be overcome.

Dr. Henry Jellett read a paper on "A Contribution to the Technique of Operations on the Appendages" (see page 233, *ante*).

Friday, March 8, 1907.

The President in the Chair.

Uterus showing a Fibro-myoma in Fundus and Cancer in Cervix.

Dr. Alfred Smith exhibited a specimen of above from a lady forty years of age. He had diagnosticated and discovered polypus of the uterus, and had made up his mind to remove it as the cause of the hæmorrhage from which the lady suffered. During removal he found an ulcerated spot in the cervix which proved to be an adeno-carcinoma under the microscope.

Sir A. V. Macan said the specimen was very interesting as showing two things which were extremely rare in combination, though neither was rare by itself.

Carcinoma of Body of Uterus; Sarcoma of Body of Uterus.

Sir A. V. Macan exhibited specimens of the above. One case was that of a woman, aged sixty years, who had had ten children, the last being eighteen years old. She had had two miscarriages. For two years, up to October, 1905, she had not menstruated. She then had a heavy period lasting for three weeks, after which she saw nothing until October last, when she commenced a period which continued until operation on February 14. The

Digitized by Google

other case was aged fifty years, and was operated upon on January 17.

DR. JELLETT, DR. DONNELLY and THE PRESIDENT spoke.

DR. M. J. GIBSON read a paper on "Pubiotomy, with Notes on Three Cases" (see page 256, *ante*).

Delivery by Pubiotomy.

DR. HASTINGS TWEEDY read a paper on the above (see page 266. *ante*).

Friday, April 12, 1907.

SIR A. V. MACAN in the Chair.

A Vulsellum Forceps.

DR. ASHE exhibited a vulsellum forceps, which he had had made in order to get over the tendency of the bullet forceps to slip out of the cervix, and the discomfort attending the holding of it for any considerable period. The chief features of the vulsellum forceps were that the points interlocked instead of meeting outside, while they were flatter on the under surface than the ordinary bullet forceps so as to offer a greater resistance and not pull through the tissues. The handles were so shaped that no matter how they were held they were a great deal more comfortable. There was no difference as to the cost of production.

Chart representing Three Years in the Life of an Eclamptic.

DR. SPENCER SHEILL exhibited a chart showing diagrammatically the dates and occurrences during the last three years in connection with an eclamptic patient. He had brought the case before the Academy a year ago, and he thought the further history of the case would be of interest. About 1900 nephrectomy was done for tuberculous left kidney. In 1904 she married and became pregnant. The remaining kidney, having the extra strain of pregnancy put upon it, began to fail; and in March, 1905, when about six months pregnant, she went to him suffering from eclampsia. Induction of labour was satisfactorily done, but the child was lost. In August of the same year she became pregnant again. The usual treatment was adopted, and as far as the kidney was concerned it was fairly satisfactory. In December of the same year the kidney again showed signs of failure. In the following January, when

Digitized by Google

about eight months pregnant, the symptoms became so marked that he determined to induce labour. He delivered her of a living child, and about three hours afterwards she had an eclamptic seizure. Although strictly spoken to about the dangers of a third pregnancy, she again became pregnant, and in November of that year the kidney showed symptoms of rapid failure. After consultation with two other doctors, it was determined, in December, 1906, when only three months pregnant, to save her life by emptying the uterus. It was emptied by him under anæsthesia, and in about three days the amount of urine became normal. In January of this year it was thought advisable to prevent any further pregnancy, and after consultation, and with the leave of the husband and the patient, her Fallopian tubes were resected. The chart raised certain points of interest, such as the postponement of marriage for at least three years after the removal of one kidney, and the question as to the induction of labour in order to save the life of the mother and the child. There was also the point as to the significance of the amount of urea in the urine. If he had gone by the amount of albumen he would never have done anything with the case: it never rose beyond 0.15 per cent., whereas the amount of urea excreted fell as low as 7½ grains per ounce in 14 ounces in twenty-four hours. There were also the points as to the advisableness of inducing abortion, and of sterilisation.

The Chairman asked if the urine was examined between the pregnancies, and whether she had a very small quantity of urea.

Dr. Sheill said the kidney was functioning absolutely normally between the pregnancies, and was quite capable of carrying on its work. The urine was examined at very frequent intervals in order to be quite sure on that point.

Dr. Hastings Tweedy said the result had absolutely justified Dr. Sheill's treatment, but he had never heard of a woman being deliberately sterilised when no symptoms were present, and when there was no suggestion that she would ever become pregnant again. He did not suggest that anything but the right thing was done, but it was a very bold procedure, and if he had to contemplate such an action he would be very glad to be able to refer to the record of a successful result in a case of a similar kind.

Dr. Jellett could not agree with Dr. Tweedy as to the particular boldness or rarity of removing the tubes for renal disease. It was on all fours with the very old treatment of osteomalacia.

Digitized by Google

One could not wait until pregnancy in order to resect the tubes. He could not look on the patient as being a healthy woman. Her kidney might be acting at one time, but it was amply proved that it would not act under the adverse circumstance of pregnancy.

Dr. Kirkpatrick instanced a case of a girl of twenty who became pregnant last year and had eclampsia at the time. She died with all the symptoms of failure of the kidneys. At the *post-mortem* they found she had old and chronic tubercular disease of one kidney, which had completely destroyed its function; the other kidney was amyloid. She recovered from the eclampsia, but died some months afterwards from failure of the single kidney.

Dr. Horne said that, considering the age of the patient, twenty-eight, and her apparent fertility, he thought Dr. Sheill was perfectly justified in his action. If he had allowed her to become pregnant again he would probably have had to repeat the former operation with less favourable results. In his experience albumen was always found persisting in the urine six and eight months after delivery where eclampsia had occurred.

The Chairman agreed with Dr. Horne, and said that the chart showed very graphically the condition of the patient.

Dr. Sheill, replying to a question by Dr. Neill, said the patient was not on an absolute non-nitrogenous diet except when she was showing kidney insufficiency. Between pregnancies she was on a mixed diet, but warned against taking the usual amount of meat.

The Method of Bier in Gynæcology.

Dr. Spencer Sheill read a paper on the above. He said the paper dealt with Bier's treatment of disease (by hyperæmia artificially produced) as applied *locally* in gynæcology, and some actual experiences with it in a variety of gynæcological ailments were related by the author. The tendency nowadays of imitating Nature's methods of combating disease was discussed. Dr. Sheill dismissed the "arterial" hyperæmia as produced by hot air, and the "venous" form by "constriction," because he had had no experience of the former, and the latter he considered inapplicable to gynæcology. The "suction" form, creating mixed arterial and venous hyperæmia, was the kind he used, and he showed a simple form of apparatus which had been successfully used in a number of cases. The author said that in order to be beneficial the "suction" must be intermittent, and must not be so strong as to cause pain. Three minute application and one minute interval for half hour-sittings daily or weekly

Digitized by Google

as the case might be, were recommended. He also spoke of the value of the intermittent action, "massaging" the uterus being valuable in cases of adhesions and relaxed pelvic ligaments. Dr. Sheill had used the treatment in two cases of amenorrhœa without obvious cause, the results were negative in so far as the menses were concerned, although in one case other pelvic symptoms were relieved. A case of endometritis was very favourably influenced. In two cases of old pelvic exudate and adhesions the result was especially gratifying. The author suggested that in gonorrhœa the suction treatment would be valuable to prevent the upward spread of the infection. Also for the safe and easy removal of tenacious mucus from the cervix of nulliparas desirous of becoming pregnant. Klapp, an assistant to Bier, was quoted as recommending "suction" in cases of suppurative mastitis. Dr. Sheill described a case in his own experience—since writing the paper—the result was excellent. In conclusion the writer of the paper expressed a hope that others in this country would give the treatment a trial, and that those who have used it would compare results obtained, because he believed it to be a distinct advance in gynæcological methods.

The Report of the Rotunda Hospital.

Dr. Hastings Tweedy read the Report of the Rotunda Hospital for the year 1905-6 (see page 272, *ante*).

The discussion on the paper was postponed till the next meeting of the section.

A New Uterine Dilator.

Dr. A. J. Horne exhibited for Dr. Duke a new uterine dilator. Dr Duke said that anyone who has performed the operation of dilatation must have noticed the contraction of the cervix uteri on the curette taking place during the proceeding. The cervical wall may also require scraping, and owing to the contraction spoken of this becomes a difficult matter, if not impossible. The canulæ shown were designed to be introduced after dilatation according to the amount of room required, the curetting being carried on through the canula, which is gradually withdrawn, thus effectually preventing the contraction of cervix on curette.

Dr. Tweedy expressed the Section's appreciation of Dr. Duke's kindness in giving them the opportunity of seeing his interesting appliance.

Digitized by Google

Friday, May 24, 1907.

THE PRESIDENT in the Chair.

DR. HENRY JELLETT exhibited the following specimens:—(*a*) Uterus and upper two-thirds of vagina removed by Werder's method for cancer of the vagina; (*b*) remainder of vagina and inguinal glands from the same case. They were, he thought, of interest from both the operative and pathological standpoint, as cancer of the vagina was a very rare condition. The specimen had been removed from a patient, aged thirty-nine. She stated she had menstruated regularly up to the present time, but that there had been a certain amount of leucorrhœal discharge, which had been gradually increasing. She had not suffered in any way from hæmorrhage. Her general health was good, and she had not lost weight. On examination he found, first of all, that there was a condition of the cervix somewhat resembling an erosion. It was congested, and bled when touched. On the anterior vaginal wall there were several nodules about the size of a hazel nut, extending half-way down the wall, and upwards almost to the cervix, and so close that for that and other reasons he believed the case to be one of intra-cervical cancer that had grown out on to the vagina. The case was a favourable one, and he decided to perform the operation described as Werder's operation. The operation went off better than he expected, there being practically no hæmorrhage. He removed the uterus, appendages, broad ligaments, and upper two-thirds of the vagina, but did not do a very extensive para-uterine dissection, as there seemed to be no indication for it. He separated the anterior vaginal wall practically down to the urethral orifice, and the posterior wall half-way down. The patient made a favourable recovery. He sent the specimen to Dr. Rowlette, who reported as follows:—

"Specimens submitted by Dr. Jellett—(*a*) Uterus and appendages, with part of vagina; (*b*) remainder of vagina, with inguinal glands.

"(*a*) *Vagina* shows ulcerating patch, about one and a half inches in diameter, situated in anterior wall. *Microscopically* this patch shows proliferating masses of epithelioid cells. In parts the cells show considerable resemblance to gland-tissue,

Digitized by Google

empty spaces being surrounded by proliferating masses of cells. The condition is malignant. In other parts the cells are in solid masses. *The uterus* presents a firm, white *cervix*, which on section exhibits one or two small cysts. *Microscopically the cervix* presents much fibrous tissue. The covering epithelium is regular, but covered with fibrino-purulent exudate. The glands in some parts are normal, in others dilated and cystic. The *endometrium of the body* is soft and friable. *Microscopically* it shows congestion and neurotic changes, but the glands are quite regular. One *ovary* is firm and hard, showing *microscopically* much fibrous tissue. The *other* has some small cysts.

"(*b*) Examination of the remainder of the *vagina* and the *glands* is quite negative. The *glands* are hard and firm, but do not, as far as examination shows, contain any secondary deposits of cancer."

There was no involvement of the rectum, bladder, or breasts, or of the intestinal tract, or anywhere else that caused any symptoms, or a tumour that could be felt. Such being the case, he thought it prudent to remove the remainder of the vagina and inguinal glands.

Dr. Hastings Tweedy said it appeared to him, from the description, to be a case of malignant disease of the vagina pure and simple; he was therefore anxious to know why Dr. Jellett considered the removal of the uterus necessary.

Dr. Rowlette said the pathology of the tumour was of great interest because of its peculiar type. On first examining the vagina he had little doubt that he would find adeno-carcinoma of the body of the uterus, but on cutting the uterus and finding no primary focus of the disease he had, he thought, to conclude that it was primary in the vagina. It was possible that it was an adeno-carcinoma originating in Wolffian remains, or it might be an endothelioma.

Dr. Jellett, in reply, said the uterus was removed both because he believed the case to be one of intra-cervical carcinoma extending into the vagina, and because in any case of vaginal carcinoma, if the entire vagina had to be removed, it is necessary also to remove the uterus. He had previously cystoscoped the bladder and found the wall healthy.

The discussion on the Report of the Rotunda Hospital for the year 1905–06 was resumed.

Digitized by Google

SECTION OF PATHOLOGY.

A NOTE ON CRYOSCOPY OF THE URINE.

By LEVESON-GOWER GUNN, M.D., F.R.C.S.;
Assistant Surgeon to the Adelaide Hospital.

[Read in the Section of Pathology, October 26, 1906.]

Some years ago, when cryoscopy of the urine was first brought to the notice of the medical profession, a great deal was claimed for its utility as a diagnostic method of the functional capacity of the kidneys. Wishing to test the truth of these assertions I have during the past two years applied the method to all, or nearly all, the urinary cases that have passed through my hands since then. Cryoscopy consists in taking an accurate reading of the point at which the urine freezes—so many degrees or fraction of a degree below zero Centigrade. If the molecular concentration is slight the urine freezes very little below zero. If, on the other hand, the molecular concentration is normal or increased the fluid will require a temperature several degrees below zero to freeze it. The cryoscopic reading gives then a measure of the molecular concentration of the urine. The taking of such a cryoscopic reading is a comparatively simple matter. Bergmann's apparatus is commonly employed. This consists of a test tube, fitted with a perforated rubber cork. In the tube are placed about two drams of the urine, enough to just cover the bulb of a thermometer, which passing through the cork almost reaches the bottom of the tube, and is

Digitized by Google

thus surrounded by urine. Dipping into the fluid is a small platinum stirring rod, which, passing up through the perforated cork, can be manipulated from outside the test tube. The thermometer is graduated to the $\frac{1}{100}$ of a degree C., and ranges from zero to 6 degrees below zero. This tube, containing the urine, thermometer, and stirring rod, is placed in a larger glass vessel containing equal parts of glycerine and water. The glycerine prevents the fluid freezing, and, by completely surrounding the receptacle containing the urine, ensures its even cooling. The two tubes are placed in a large glass jar containing a mixture of one part of salt to two parts of broken ice. With this a temperature of about 10 degrees below zero can be kept up. Such is the apparatus ready for use. The observer watches carefully the column of Hg. As soon as this reaches the zero mark the stirring rod is gently moved up and down through the urine. The mercury now falls rapidly to 3, 4, or 5 degrees below zero. Then, as freezing is about to take place, some heat is set free and the column of Hg. rises quickly to about 2 degrees below zero, stays at rest for a moment, and slowly falls again. As a rule, just at the beginning of this second fall, crystals of ice can be felt forming in the urine, by means of the stirring rod. The moment these are felt the height at which the Hg. stands is read off—say, $-2.36°$. This experiment is repeated three times, the urine being allowed to thaw; by withdrawing the inner tube for a few moments the second and third readings give, let us say, $-2.32°$ and $-2.34°$. These are added together, divided by three, and the average reading of $2.34°$ below zero is the cryoscopic reading of the sample of urine.

This is the method:—I try to arrange that several specimens of urine are ready for examination at the one

Digitized by Google

time, and find that half a dozen specimens of urine can be readily examined in this way in an hour's time.

I have taken the above as a cryoscopic reading of a normal urine. There is no standard that we can say is normal. Should, however, the urine from a mixed twenty-four hour specimen require less cold than 1.20 degrees below zero to freeze it, it is probably abnormal, and the functional capacity of the kidneys is temporarily or permanently impaired.

The molecular concentration of the urine can be obtained in three ways:—

1. By a quantitative analysis of all the substances contained in the urine.

2. By taking the Sp. Gr. of the urine, care being taken to first remove all the proteids present.

3. By cryoscopy.

Has the third method which I have just described any advantage over the other two? The first method requires a skilled analyst, a considerable amount of urine, and must take a long time to carry out. For the second a considerable amount of urine is also required. In cases where the separated urines are examined (either by means of catheterising the ureters or by some separating instrument) this necessary amount of urine may be very difficult to obtain. A couple of drams of urine, on the other hand, is sufficient for a cryoscopic examination.

Two points in the diet must be watched before taking a specimen of urine for examination. The patient should get little or no solid food, and only a limited amount of liquid nourishment, for some hours before the examination is made. Observers have pointed out that cryoscopic readings of the urine are untrustworthy—(*a*) if there is great abdominal distension, either from the pressure of a large abdominal tumour or from fluid in

Digitized by Google

the peritoneal cavity, and (*b*) during attacks of acute pain in either bladder, ureter, or kidney. I have examined numerous specimens of urine from patients whose kidneys I had every reason to believe were healthy, and in every case obtained normal cryoscopic readings. Other cases in which I knew both kidneys were diseased nearly always gave abnormal readings; but in two cases where the urine froze at – .80° and – .77°—that is to say, showed a very low molecular concentration and apparently great loss of renal functional capacity—one has lived now for two years, and, although he has occasional slight symptoms of uræmia, is certainly no worse than he was two years ago. The other patient has been under observation now for fifteen months without showing any signs of renal insufficiency. On the other hand, in two cases where there were bad cryoscopic readings, but with no symptoms suggesting renal insufficiency, in a short time both died from uræmia.

Turning to the most interesting class of cases, those in which one kidney is diseased, and the separated urines are examined to find out if the second kidney can act sufficiently to support life, I do not think in such cases that a cryoscopic examination, although it will give considerable help, yet will justify a very definite pronouncement, for in most cases the diseased kidney is secreting a proportion of the urine. We have no proof that the second kidney, which before operation gave a normal reading, will continue to do so, when by the removal of the diseased kidney the whole of the urinary secretion devolves on it alone. The reverse equally holds good if the healthy (?) kidney gives an abnormal reading. It may only mean that it is doing all the work required of it at the time, and it may be quite capable of carrying on the entire urinary secretion.

Digitized by Google

In one case the combined urine gave a normal reading. The urine from the healthy kidney gave, before operation, readings of – 1.13° and – .99°, yet now, seven months have elapsed since the diseased kidney was removed, and the patient enjoys good health, and passes about forty-five ounces of urine, giving a reading of – 1.44°.

While I do not think the method of cryoscopy will give all the information which has been claimed for it by some observers, yet I believe that, especially when combined with a careful microscopic examination of the urine, it will prove of undoubted help in deciding for or against an operation and in the prognosis of many renal cases.

Dr. McWeeney said that he had not been convinced, either by his reading on the subject or by the communication just made, that the diagnostic advantages to be derived from cryoscopy of the urine would compensate a hard-worked pathologist for the labour involved in working the apparatus which had been exhibited. It was acknowledged that the lowering of the freezing-point was a valuable indication of molecular concentration; but he failed to see the necessity for the method of cryoscopy, when it was always possible for a man—who was clever and patient enough to carry out cryoscopy—to determine accurately the total solids after removal of the colloid constituents, or to take the specific gravity accurately. What applied to urine applied also to the blood; and, as the latter coagulated with considerable activity, he thought it was a difficult matter to saturate a sample with oxygen, as mentioned by the communicator. In his opinion one would have to be pretty sure of his technique in order to draw wide inferences from the delicate data and slight divergences from the normal which were obtained by cryoscopy. He considered that simple methods, such as the taking of the specific gravity, gave just as useful results; and he was glad that the knowledge which he had gained from Dr. Gunn's authoritative statement had not imposed on him any change in his personal practice.

Digitized by Google

DR. GUNN, in reply, said he had taken up the subject of cryoscopy, because he believed that by it much might be found out about the condition of the kidneys. The time and labour involved were not very great; two or three readings of half a dozen samples could be taken in an hour; and it was, of course, necessary that the *mean* of two or three should be taken. He did not deny that the specific gravity gave an equally good demonstration of the molecular concentration, but in that method all the albumen in the urine had to be got rid of. He thought the only way to advance knowledge was by trying every method, and the only way to ascertain the value of cryoscopy was by using it.

Digitized by Google

A CASE OF SUFFOCATIVE HYDROTHORAX IN WHICH THE PLEURÆ WERE TAPPED SEVERAL HUNDRED TIMES.

By J. F. O'CARROLL, M.D. R.U.I., F.R.C.P.I.

[Read in the Section of Pathology, January 4, 1907.]

The history of the case I have to put before the Academy is interesting, clinically as well as pathologically:—

It was that of a man, aged sixty-five, robust, cheery, amiable, and intelligent, who entered hospital in May, 1900, suffering from great distress in breathing and epigastric pain. Considerable swelling and tenderness in the epigastrium led me to think that the patient had some epigastric tumour. The urine, small in quantity and dark in colour, had a fair amount of sugar in it, and it was thought probable that the pancreas was involved. A leisurely examination revealed a systolic apex murmur, faint, and not transmitted very far, together with some dulness in both pleuræ. A month afterwards the right pleural cavity was tapped, and forty ounces of fluid were withdrawn. Two days later the left pleural cavity was tapped, seventy-six ounces being withdrawn. By way of corroboration of a recantation of the first diagnosis already made, the liver receded up under the lower ribs, and from that time onwards there was no further suspicion of any abdominal mischief, although the epigastric distress recurred whenever the pleuræ became full. The sugar in the urine diminished at every tapping, and frequently disappeared, and seemed to be more or less referable to the amount of dyspnœa and cyanosis present from time to time. Occasionally, as might be suspected, there was a trace of albumen in the urine. A slight purplish tinge was visible through the patient's natural ruddiness, and the veins in his neck were slightly more prominent than they would ordinarily have been. He had also at first some œdema of the legs. Tapping had to be resorted to to such an extent that within the first six months in hospital sixty tappings were actually recorded, and probably some tappings had not been noted.

Digitized by Google

The œdema disappeared, and the abdomen became normal, but subsequently, when the effusions were becoming considerable, the epigastrium swelled out again with the original tenderness. From about the third or fourth month of his residence the conclusion had been arrived at that he had some obstruction of the vena azygos major, and the diagnosis rested there to the end. It was confidently believed, on purely anatomical grounds, that the mischief must reside there. During the first four or five months the pleuræ were tapped almost alternately. Thereafter the right one was tapped about twice for every time the left was tapped, and this proportion was maintained till March, 1902, when the left pleural cavity ceased to secrete, as the result of an adhesive pleuritis. He had then to be tapped twice as often on the right side, and this went on, practically every second day, to the amount of fifty, sixty, and seventy ounces till the beginning of May, 1903, almost three years after his admission. Then the right pleura began to show signs of not yielding as much fluid as formerly, and of being annihilated by adhesive pleuritis of rapid course. He died when this was complete, practically as if he had been garotted in such a way as to stop the venous flow into the heart without obstructing the trachea, the process lasting about two days. He had spent three years all but five days in hospital, had hardly lain down in bed for more than two or three hours nightly all that time, but had retained weight, appearance, and good spirits up to the fatal and final closure of the right pleural cavity three days before death.

At the *post-mortem* examination it was difficult at first sight to find any abnormality to account for the clinical history. Oval or roundish plaques of ossifying fibrocartilage were found at the sides of the intervertebral discs in the lower half of the dorsal and in the lumbar region. These may have been attributable to a chronic rheumatoid condition, of which, however, he showed no other sign, or have been conditioned by his having to sleep in a chair at night during the three years in hospital. On examining the heart and slitting up the vena cava superior a distinct prominence was noticed, which appeared to bulge forward the posterior wall of the cava and to turn off with an L shape into the posterior wall of the vena azygos. This was an aggregation of tubercular glands of no great bulk; but the real mischief was caused by an actual fusion of the gland mass with the azygos wall exactly

Digitized by Google

at its outfall into the cava. At this very point the azygos was closely adherent to the gland capsule in a crinkled, depressed scar, of slate colour, corresponding to that of the gland beneath. The girth of the vein at this point was half that immediately to the right of it. The total amount of fluid withdrawn during the three years was computed to weigh about three-quarters of a ton.

Digitized by Google

SACRO-COCCYGEAL TERATOID TUMOUR, WITH FORMATION OF METASTASES IN THE GROIN.

By SETON PRINGLE, M.B. (Univ. Dub.), F.R.C.S.;
Surgeon to Mercer's Hospital.

[Read in the Section of Pathology, March 15, 1907.]

As tumours of the sacro-coccygeal region may be classed among the surgical and pathological curiosities I considered the following case worthy of record, more especially as it presented some unusual features :—

The patient, M. S., aged fifty-seven, a cattle drover by occupation, was admitted to Mercer's Hospital on September 23, 1904, having been sent up from the country to have a tumour which, as he said, "prevented him sitting down," removed. His history was briefly as follows :—Thirty-five years ago he first noticed a small lump, about the size of a nut, in the middle line some distance behind the anus. This tumour grew very slowly, and remained quite painless till about four years ago, at that time being the size of an orange, when it assumed more rapid growth, and he felt what he calls "rheumatic pains" in it. Since then growth has proceeded in rather a peculiar manner; one part would, he says, grow rapidly, forming a painful nodule, with the skin over it reddened; but when the nodule reached the size of a hen's egg growth, would cease and the skin become pale again; then another part would take on growth, and the process repeat itself. For the last few months the upper extremity had been growing rapidly in this manner. At no period did the tumour break down or ulcerate, and it was freely moveable for years, but has become more fixed in the last twelve months. Some thirty-three years ago, or two years after the appearance of the above tumour, he noticed a small hard lump in his right groin, which had continued to grow slowly and quite painlessly up to the present, when it is about the size of a duck's egg. About twenty years ago he discovered another lump, also in the right

Digitized by Google

Mr. Seton Pringle—Sacro-coccygeal Teratoid Tumour.

Fig. 1.—The sacro-coccygeal teratoma before removal.

Digitized by Google

Digitized by Google

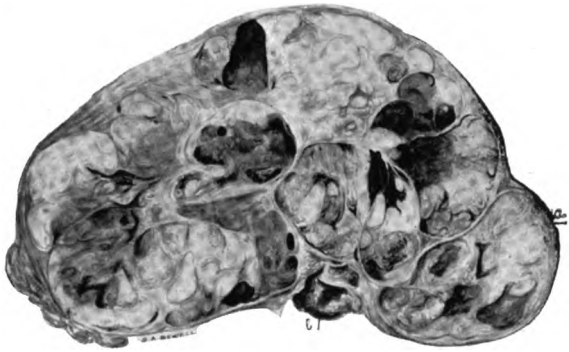


FIG. 2.—Macroscopical appearance of tumour cut vertically. *a*, Upper pole. *b*, Pedicle cut across. (Scale ¼.)

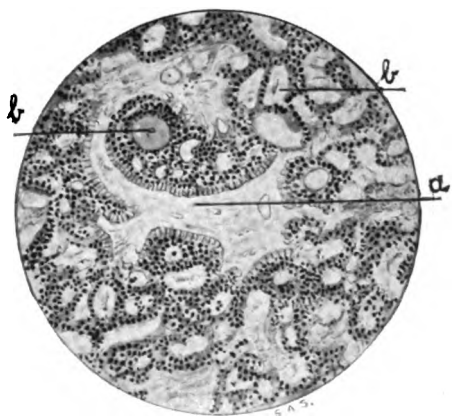


FIG. 3.—Microscopical appearance of teratoma showing—*a*, connective-tissue core of intracystic process with layer of columnar cells; and *b*, numerous capillaries surrounded by zone of mucoid material.

Digitized by Google

Digitized by Google

groin, above and outside the earlier one, and this is now about the same size as its neighbour. For the last year he has noticed increasing difficulty in micturition and defæcation, the stools becoming smaller till now they are about as thick as his index finger. He says that latterly he has suffered from "rheumatic pains" in his right hip and down the thigh to the knee, but that otherwise he is quite strong, has not lost much weight, and his chief complaints are that he is unable to sit for any length of time, and that pressure or cold cause pain in the lump. He knows of no relatives who have suffered from similar tumours, and his own children, the youngest being twenty years old, show no abnormality.

On examination a large tumour was found over the sacral region, the general character of which can be well seen in the accompanying photograph. It measured fifteen inches over all, from the upper to the lower extremity, and eleven inches from side to side, the base extending from the upper border of the sacrum to the anal margin, and from slightly outside the left margin of the sacrum to well on to the right gluteal region. Its surface showed irregular lobulations; the skin over most of the mass was mottled blue, but over the upper pole was red and inflamed. There was no induration round the base, and the adjacent skin appeared perfectly normal. On palpation the tumour was found to be more or less fixed, apparently to the back of the sacrum, but could be moved to a certain extent from side to side. The skin covering it could not be moved apart from the tumour, but this appeared to be due to its tightly stretched condition. The consistence of the growth was not uniform, most parts being densely hard, but over several small areas it was diffluent or semi-fluctuant, and on one spot a fine crackling, rather like that felt in chromdromata, could be elicited on deep pressure. The upper pole was rather softer than the rest of the mass, and pressure here caused pain. In the right groin were two tumours, each about the size of a large duck's egg, and evidently enlarged lymphatic glands. The skin over them was perfectly normal and freely moveable. These tumours felt very hard and firm, with a slightly nodular surface; they were almost painless on pressure, and were freely movable.

On rectal examination the hollow of the sacrum was found to be full of a hard mass of growth, which pushed forwards the

Digitized by Google

posterior wall of the gut, so that the lumen was semilunar in outline. This mass extended up as high as the finger could reach; its surface was slightly nodular; and pressure caused little pain. A hard mass could also be felt anteriorly around the prostate, and on passing a urethral sound an obstruction was found in the deep urethra, through which a No. 6 English sound could just be passed.

From the examination it was evident that the growth was so far advanced that it was out of the question to attempt complete removal, but, as the patient was extremely anxious to have something done, I removed the glands from his right groin on September 29 as a preliminary measure, and for purposes of examination. They both shelled out quite easily and with little hæmorrhage, and the wound healed by first intention.

DESCRIPTION OF THE GLANDS AFTER REMOVAL.

Each gland was about the size of a duck's egg, hard and firm to the touch, and rather nodular on the surface. Macroscopically the cut surface showed that a definite capsule enclosed the gland, which was composed of lobulated masses, varying in size from a pin's head to a nut, and of different shades of a brownish red colour. These nodules were separated from one another by bands of semi-transparent homogeneous material, from which exuded a slimy mucous-like substance. Small hæmorrhages could be seen in parts.

Microscopically it was seen that the lobulated masses were in reality cysts with connective tissue walls. In these cysts could be seen three different appearances:—

(1) Parts where the cyst was full of cells with oval nuclei, and running through the mass of cells were connective tissue bands containing blood-vessels. These bands were evidently the cores of intra-cystic papillary outgrowths. The layer of cells next the core were in places distinctly cubical. The connective tissue in parts showed commencing mucoid charge.

(2) Parts where the cells were much less numerous, and were arranged two or three rows deep round capillaries, but separated

Digitized by Google

from them by a zone of mucoid material, the cells abutting on this mucoid zone were distinctly columnar.

(3) Parts where practically the whole tissue had been converted into mucoid; in places the capillaries could still be seen surrounded by a zone of mucoid, the different areas of mucoid being separated by a single layer of flattened spindle-shaped cells.

I take it that these three appearances are merely different stages of a very extensive mucoid change taking place in the connective tissue stroma of the tumour round the blood-vessels, and that this degeneration went on to such a degree that the cells atrophied from pressure and lessened blood supply, and this reading, I think, explains the slow, almost unappreciable, growth of the glands.

From these appearances we concluded that, although the tumour was malignant, it was of very slow growth and degenerated very quickly, so after explaining to the patient that he could not be permanently cured, but only made more comfortable, I operated on October 10th. It was found quite easy to remove the growth by cutting through only healthy tissue, except at one part, where a pedicle, of diameter about one and a half inches, led into the pelvis through the coccyx, which had been almost completely destroyed. The hæmorrhage was easily controlled by deep catgut stitches passed through muscles and drawing these structures together over the bared sacrum. As much of the intra-pelvic growth as possible was removed through the space left by the pedicle, a gauze drain inserted, and the wound closed by a continuous suture. There was considerable tension of the upper part of the wound, and here the edges sloughed, but the wound rapidly granulated up. The patient was out of bed in a fortnight, and a month later the wound was completely healed, except for a small sinus over the position of the pedicle, which ran into the pelvis. I then allowed him to return home,

Digitized by Google

as he could sit comfortably for an hour or two, and expressed himself as very gratified with the result of the operation. Some time after his return to the country I heard that he had had several attacks of retention of urine and sub-acute obstruction of the bowel, which prevented him regaining his strength. His condition gradually grew worse, and he died fourteen months after the operation. For the last few months he led a catheter life, and had recourse to strong purgatives and enemata to empty the rectum.

DESCRIPTION OF THE TUMOUR.

Its weight was 3 lbs. 13 ozs. The surface is lobulated, as described above; the skin over it is in parts adherent, in other parts can with little difficulty be peeled off, as can also the piece of gluteal muscle which I removed with the tumour at its base. The consistence is in most places densely hard, but the diffluent areas mentioned can also be made out. On section the cut surface presents for the most part a white semi-transparent homogeneous or fibrillated appearance, and from it exudes a great quantity of the same mucoid material as from the glands. This whitish structure is arranged irregularly in bands and masses throughout the tumour, comprising about three-fourths of the entire growth, and feels hard and firm. The remainder of the tumour is composed of cysts of various sizes and shapes, as a rule enclosed by a definite fibrillated whitish wall, and full of rather soft, spongy material of all colours, from a yellow to a dark red, almost black colour, but in most places of a brownish red shade.

Microscopically the greater part of the tumour—*i.e.*, the solid whitish parts described above—consists of fibrous tissue, generally hyaline in character, arranged in loose bundles separated by mucoid material. In places hæmorrhage has occurred into the loose fibrous tissue. The cystic parts of the growth are all of essentially the same structure, and I will

Digitized by Google

only describe the appearance seen in sections of the pedicle and the upper pole. Under low powers the section of the pedicle reminds one in general arrangement of the structure of papillary cyst adenoma of the ovary. The interior of the cysts is broken up by numerous bands of connective tissue of varying strength, which act as supports for the cellular elements of the tissue. In places these bands can be seen springing from the wall of the cyst, so that they are in reality the connective tissue cores of the papillary outgrowths. Under higher powers the minute structure is seen to be almost identical with that described in the lymph glands—*i.e.*, capillary vessels surrounded by fibrous tissue, which in many places has become mucoid, and outside this two or three layers of epithelial cells, the layer next the fibrous tissue being columnar, while those outside this are irregular in shape and arrangement. In one place the appearance strongly resembles that seen in papiloma of the intestine. There are numerous pigmented cells in the connective tissue stroma. The section of the upper pole, or rapidly growing part of the tumour, shows practically the same appearances. In a general survey we are again reminded of papillary cyst adenoma of the ovary, though perhaps not so strongly. We see again the same essential structure of blood-vessels surrounded by fibrous tissue or mucoid substance, this surrounded by several layers of cells—the deep layer again columnar, the other irregular—the cells in their turn enclosing small irregular cyst spaces. In no part of the tumour is there evidence of marked mitosis, and neither cartilage nor bone can be demonstrated, but a number of pigmented cells, perhaps of nervous origin, are seen.

The literature in English on sacro-coccygeal tumours is very scanty, and the only reference of any value which I could find was in Bland Sutton's "Tumours Innocent and Malignant." There he describes what he calls "congenital

Digitized by Google

cystic sarcoma," and considers that they arise from the post anal gut. These tumours have, he says, a definite structure, consisting of "closed vesicles lined with glandular epithelium, and containing glue-like fluid. Many of these tumours are composed of cysts and duct-like passages, lined with cubical epithelium held together by richly cellular connective tissue. In many situations the epithelium is columnar set upon flatter cubical cells. The cysts are filled with ropy mucus, and vary in size from a nutshell to the smallest space visible to the naked eye; many contain intracystic processes."

The German literature is, however, more profuse. Borst,[1] in dealing with teratomata of the anterior and posterior ends of the trunk, after describing the various forms of meningocele and tumours arising in connection with meningocele or spinæ bifidæ, classifies the remaining teratomata of these regions into (*a*) tumours arising from fœtal inclusions—*i.e.*, bigerminal tumours—and (*b*) monogerminal teratoid tumours, the essential difference being that in the former recognisable rudiments of organs not normally formed from the hind end of the fœtus are found. Tumours of either class occur commonly in the sacral and coccygeal region, situated either in front or behind the vertebræ, or in both places, the communication between the dorsal and ventral tumour then being either through or round the side of the bone. The structure in either case is also very similar, with the one essential difference mentioned above. Both consist of solid and cystic parts. In the solid part all forms of connective tissue are found, with also usually fat, unstriped muscle, bone, cartilage, and nervous elements. The cysts vary in structure; they may be lined with a cubical, cylindrical or flat epithelium, or have a moucous membrane-like or ectodermic lining. Occasionally intestinal or neural canal epithelium is met with. True dermoid elements may also be found in some, while the contents of these cysts may be fatty, gelatinous, mucoid,

Digitized by Google

or bloody, and their walls fibrous, cartilageous, bony, muscular, pigmented or papilliform. These various forms of cysts may be intermixed in the one tumour. Besides cysts we may find complex glandular structures, and in a tumour reported by Middledorf,[2] belonging to the second class, a piece of well-formed intestine, presumably derived from the post anal gut was found.

Hennig,[3] in Ziegler's "Bietrage," published a paper on the congenital sacral tumours, in which he gives an analysis of twenty-two cases collected from the literature, and adds two of his own. Following von Bergeman he classifies tumours of this region which do not communicate with the spinal canal into (1) cysto-cavernous lymphangiomata, and (2) teratomata; these latter he subdivides into (*a*) simple dermoids, (*b*) compound dermoids, (*c*) cysto-sarcomata, and (*d*) fœtal inclusions. His cysto-sarcomata are evidently identical with Borst's monogerminal teratoid tumours, and with Bland Sutton's tumours of the post-anal gut.

The theories of the origin of these tumours are various. Meckel regarded them as showing a tendency of the hind end of embryo to develop like the fore end; Luschka as tumours of the coccygeal gland; Calbet, Hennig, and others as true parasitic double formations; while Borst looks on them as derived from vestigial and maldeveloped structures found normally at the hind end—viz., post-anal gut, neurenteric canal, aborted tail and coccygeal remnant of the neural canal, and he considers that they arise from one or all of these.

I think there cannot be any doubt that the tumour which I have described above belongs to the class of monogerminal teratoid tumours, but it differs from all recorded cases because of the following peculiarities:—

(1) Its late appearance. Most recorded tumours have been present at birth, and the others were discovered very soon after birth. Probably the intrapelvic portion of my tumour

Digitized by Google

was present at birth and caused no symptoms, or perhaps a very small external sacral tumour existed long before it was noticed by the patient.

(2) Its comparatively simple structure. This, however, may not be so simple as it appears, for, although I made a careful search for bone, &c., and cut many pieces of the growth, still the examination cannot be considered complete, especially as one man cut over 400 sections of his tumour.

(3) The occurrence of metastases in the groin. In the only other reported case with metastatic growth which I could discover, the secondary deposit was found in the opposite ischo-rectal fossa. The patient was only five weeks old and died after operation, whereas in my case the metastases had been present for thirty-three and twenty years respectively.

In conclusion, I desire to thank Professor O'Sullivan for his interest in the case, and to express my great indebtedness to Dr. T. G. Moorhead for his help with the literature, without which, I fear, my report of the case would have been incomplete.

REFERENCES.

[1] Die Lehre von der Geschwülsten. Vol. II., p. 899.
[2] Virchow's Archives. Bd. CI., p. 37.
[3] Ziegler's Beitrage. No. 28, p. 592.

Digitized by Google

OBSERVATIONS ON THE BACTERIOLOGY OF CEREBRO-SPINAL MENINGITIS.

By E. J. McWEENEY, M.A., M.D., D.P.H., F.R.C.P.I.;
Professor of Pathology, Catholic University School of Medicine.

[Read in the Section of Pathology, May 3, 1907.]

For the first time since 1900 I have had this year the opportunity of studying the morbid anatomy and bacteriology of epidemic cerebro-spinal meningitis which, having been prevalent in Glasgow during the latter half of 1906, made its appearance in Belfast on December 29, and in Dublin early in February, since when, up to the end of April, it has (according to figures for which I am indebted to the Registrar-General) caused twenty-seven cases of notified illness and nineteen deaths. I will now give the Academy, in as few words as possible, my experience of the cases of all forms of meningitis that have come under my personal observation since the beginning of the year.

I. and II.—These were both cases of tubercular meningitis in young girls at the Mater Hospital. I performed the autopsies, and can vouch for the accuracy of the diagnosis.

III.—This was the case of a child at the Children's Hospital, Temple Street, suspected to be of the epidemic variety. It occurred during the first week of February, when attention was first being directed to the existence of this form of the disease in Dublin. I did not perform the autopsy, but only saw the brain and cord, which were sent for examination by the physician in charge, Dr. J. H. Davys. I had no difficulty in detecting the presence of tubercles in the cerebral meninges. Smears from the exudate in the interpeduncular space revealed numerous tubercle bacilli. But there was one remarkable circumstance

Digitized by Google

which deserves to be explicitly recorded. Whilst looking for tubercle bacilli in a smear preparation of the cord *I came across a polynuclear leucocyte containing several pairs of typical flat-faced diplococci, exactly resembling those of Weichselbaum.* The reaction to Gram I could not tell, as the preparation was stained for tubercle, and I failed to find another such cell. The meninges of the cord did not present any marked exudate or other naked-eye abnormality. The observation is interesting as pointing either to the existence of a mixed infection or, at any rate, to the entrance into the meninges of micro-organisms of that type, which seems to have a special affinity for these membranes. It makes one wish to know whether, if smear preparations were more frequently made in cases of cerebro-spinal meningitis other than epidemic, the existence of intracellular diplococci might not often be demonstrated—whether, even in the absence of any inflammatory lesions of the meninges, similar organisms might not be often found if looked for. We must, I think, assume that intracellular diplococci tend in some way not yet fully understood to gain entrance from their natural *habitat*, the nasopharyngeal *mucosa*, into the craniospinal cavity. In the case of most of them, such as *Diplococcus crassus*, *D. flavus*, *Micrococcus catarrhalis* and others, the fact has no great significance. But when it is the Weichselbaum organism that finds its way in, then the consequences are of vital, or rather of mortal, importance to the individual.

IV.—This case occurred also at the Children's Hospital, Temple Street, early in February. The patient was a child, aged three years, which presented a typical clinical picture of the epidemic form of the disease. The physician in charge, Dr. D. Farnan, removed a specimen of cerebro-spinal fluid by lumbar puncture, and brought it to my laboratory for examination. At the time this was done the illness had lasted four or five days, and death ensued two days afterwards. The specimen consisted of about 10 cc. of clear fluid, with a slight deposit, consisting mostly of red corpuscles, and to a lesser extent of pus cells, in none of which could any intracellular coccus be detected with the microscope. Dr. Farnan inoculated the sediment on ordinary and blood-agar without success. Next day I obtained a culture

Digitized by Google

by means of a simple expedient—adding to the cerebro-spinal fluid about an equal volume of 1 per cent. dextrose-broth, and incubating. On the following morning there was distinct cloudiness of the fluid, due to growth of flat-faced diplococci in pure culture. These proved to be Gram-positive, and readily cultivable on all the usual laboratory substrata, even at temperatures below 30°. Hence they were not the Weichselbaum organisms. I consider these cocci to be in all probability identical with the form described by V. Lingelsheim as *Diplococcus crassus*, and I shall have something more to say about it later on. I may add that Kutscher (in Kolle & Wassermann's Handbuch d. path. Mikro-Org., 2nd Ergänzungsheft, p. 488), records a similar experience—the sole occurrence of *crassus* in a case of epidemic cerebro-spinal meningitis.

V.—This was a case of a woman who died early in February at Cork Street Fever Hospital with symptoms suggestive of cerebro-spinal meningitis. By kind permission of Professor White, Pathologist to the Hospital, I performed an autopsy, and found lobar pneumonia, with distinct evidence of purulent meningitis of brain and cord. The cultures yielded pneumococci.

VI.—This was the first genuine case of the epidemic disease which I encountered. The patient was a finely-built young married woman, at full-time pregnancy, who came up to Dublin for her *accouchement*. A doctor summoned to see her at 3 a.m. on Feb. 21 found her unconscious, breathing stertorously, with a very rapid and thready pulse, and a subnormal temperature. She was lying on a couch throwing her arms from side to side, and hitting her head against the pillow. On removal to the National Maternity Hospital, Holles Street, she was found by the Assistant-Master, Dr. Arthur Barry, to be at full-time pregnancy, but not in labour. Although this paper is not clinical in scope, I deem it advisable to give the following clinical details, for which I am indebted to Dr. Barry:—The patient was unconscious, with convulsions limited to arms and head, complete loss of reflexes, and inequality of pupils, sometimes dilated, sometimes contracted, but not reacting to light. Babinski's & Kernig's signs were present. There was no rash, no herpes, no retraction of the head muscles. The urine contained a small

Digitized by Google

amount of albumen. As there was imminent danger of death, Cæsarean section was done the same day, but the child was dead, and patient died without recovering consciousness at 6 30 a.m. on the 22nd. I performed the autopsy on the following day, about thirty-one hours *post-mortem*, with the following results :— Body well nourished; abdomen greatly distended, presented a long fresh laparotomy wound. The distension was due to intestinal flatus; the bowel was much overloaded with fermenting fæces. The face and lips were deeply cyanosed, and bloody fluid flowed from the nostrils.

Lungs and Pleuræ.—Normal; free from tubercle.

Pericardium.—Inflamed; contained turbid fluid, with flakes of lymph.

Heart.—Hypertrophied; muscle flabby; fatty infiltration, and degeneration of right ventricle; tricuspid orifice dilated.

Spleen.—Somewhat enlarged; firm.

Kidneys.—Enlarged, pale, soft, capsule readily detachable, cortex increased in width (early stage of large white kidney).

Liver and Pancreas.—Normal.

Stomach.—Reddened interiorly; contained fæculent fluid.

On opening the skull the *dura* was found hyperæmic and tense; the large veins in the *pia* over the convexity were accompanied by grey streaks of suppuration. The interpeduncular space was *not* filled up with exudate, nor did the sylvian fissures present any pus. The cerebro-spinal fluid was greatly increased, and very turbid. The cord was not removed, but the fluid, flowing from the spinal canal was collected for examination. Taken altogether, the appearances presented by the brain and its membranes were by no means striking, and the aid of bacteriology had to be invoked in order to arrive at a definite conclusion. Microscopic examination of the pus, obtained by centrifuging the cerebro-spinal fluid, quickly revealed typical cells containing Gram-negative flat-faced diplococci, and the diagnosis was thus at once set at rest (*demonstration of coloured lantern-slide on screen*). In the pericardial exudate I failed to find any such, but I came across many large Gram-positive anthrax-like rods, occurring in pairs and chains. These only grew anaërobically, and appeared to be identical with the *B. aerogenes capsulatus*, no doubt an agonal invasion from the overloaded bowel.

Digitized by Google

The methods for collecting the material and removing it to the laboratory had to be improvised, and were not quite flawless. Accordingly, most of my cultures were contaminated next day. But on the lower part of ordinary agar slopes, near the condensation water, I came across several large (3 to 4 mm.) moist-looking colonies that proved to consist of largish, rather ill-defined, Gram-negative diplococci in pairs and tetrads, but not forming chains. After the first remove they grew scantily or not at all on ordinary agar, but luxuriantly when the agar had added to it about one-fifth of its volume of human ascitic fluid, and better still, as it seemed to me, when a small percentage of sugar (dextrose) was present. The colonies were large (up to 4 or 5 mm. across in twenty-four hours), greyish, translucent, and often thinner at the margin. They were often confluent. I now exhibit typical stroke cultures, and demonstrate a coloured lantern-slide showing the naked-eye characters of these cultures. (Demonstration.) On Löffler's serum the organism grew as colourless or greyish, dewdrop-like, colonies of somewhat tenacious consistency. In ordinary broth, cultures usually failed, but on addition of one-fifth of its volume of ascitic fluid the broth usually became moderately turbid with a sticky deposit at the bottom and exceptionally a pellicle on the surface. On potato and gelatine no growth occurred, nor on any medium under 30° C. I found the cultures very liable to die if left more than three days without re-inoculation, and sometimes they failed quite capriciously to yield sub-cultures. When this occurred I found a good plan was to fill up the tube to the level of the top of the agar slope with serum broth, and replace in the incubator. Of course I am referring to the old culture-tube from which reinoculation had proved unsuccessful. Any cocci that remained alive thus get a chance of multiplying,

Digitized by Google

and the broth will nearly always yield a culture. The cultures have practically no pathogenic properties for rabbits. I injected an entire agar culture into the peritoneum of a rabbit without the smallest result, and the fluid removed a few hours afterwards with a capillary pipette was thick and turbid from pseudo-eosinophile leucocytes, which were simply crammed full of the cocci.

These, then, are the chief characters of this organism, the identity of which with that first described by Weichselbaum, of Vienna, in 1887, cannot be doubted. Nor can we hesitate in ascribing to this organism the *rôle* of producing the epidemic form of cerebro-spinal meningitis It is the same as that isolated by Councilman, Mallory, and Wright 38 times out of 55 cases tested in Boston in 1898, by Faber in Germany[1] 27 times out of 31 examinations, by Cochez and Lemaire[2] 39 times out of 44 cases, by Schottmüller[3] 43 times out of 49 cases, by Bettencourt and França[4] in every one of the 271 cases they examined.

The remaining cases which I had occasion to examine need not now detain us long.

VIII.—On March 1, I received, through the Local Government Board, from Bailieborough, nasal swabs taken from patients and contacts. There had been four fatal cases in this district. I failed to obtain the Weichselbaum organism culturatly, and to see anything like it microscopically, in this batch of material. Puncture-fluid was not sent. The cases were clinically undoubted.

VIII.—Cerebro-spinal fluid from child at Fermoy, Co. Cork. Result, negative.

IX.—On March 7 I received from Dr. Henry, of Clones, a specimen of puncture fluid obtained by him from a child aged six years, presenting typical symptoms of epidemic cerebro-spinal meningitis. The fluid was opalescent from suspended pus-cells, in some of which I had no difficulty in

Digitized by Google

finding the typical meningococcus. Cultures also proved successful, and I kept the "strain" going until the present week, when for some unexplained reason it died out, though treated exactly in the same way as the Dublin strain from Case VI., and several others which survived. Dr. Henry had two other cases, both fatal, under his care about the same time. All occurred in the same family, and are of much interest, as there is evidence to show that the disease was imported directly from Glasgow to Clones.

X.—This was a specimen of cerebro-spinal fluid given me by Dr. J. B. Coleman, C.M.G., who obtained it from the case of a girl under his care in the Hardwicke Hospital suffering from typical cerebro-spinal meningitis, and who subsequently died. Itconsisted of about 2 ozs. of turbid fluid, in which pus-cells containing the meningococcus were readily found. Cultures also succeeded, and I kept the strain going for some weeks, when it died without ascertainable reason.

XI.—This was the case of a boy of about ten years, admitted from an Industrial School into the Mater Hospital with symptoms pointing to some septic condition complicated with meningitis. He was unconscious, and had a high temperature. In this case I not only performed lumbar puncture, but also obtained from the median basilic vein the full of an antitoxin syringe of blood, which I used for broth-cultivation in flasks. The lumbar puncture yielded over 30 c.c. of clear fluid, from which hardly any sediment could be obtained with the centrifuge. Such white cells as it contained were not polynuclear, but rather resembled lymphocytes. On cultivation it yielded nothing resembling the meningococcus, but there appeared on the serum agar a few pellucid flat discoid colonies smaller than those of the meningococcus. They proved to consist of very minute Gram-positive cocci. Of the two blood-flasks, one was contaminated by a large sporing bacillus, and the other yielded minute Gram-positive cocci. I very much regret that I omitted to work up this organism. The boy died the day after, and the autopsy revealed tubercular meningitis, with general tuberculosis and septic infarctions of the lungs. The only portal for septic infection I could find in the body was a small wound on one hand,

Digitized by Google

covered with a dried-up, blackened eschar, but without evidence of inflammatory reaction. In this case we have a somewhat unusual one of mixed general tubercular and septic infection.

Of my six autopsy-observations on meningitis cases this year four were of tubercular nature—two being purely so. Of the two others, one was tubercle + *crassus*, the other tubercle + some septic coccus (which, however, could only have been present, as a mere denizen, in the cerebro-spinal axis as it had not produced a polynucleosis in the puncture-fluid).

Of the two non-tubercular cases, one was genuine epidemic cerebro-spinal meningitis, due to the Weichselbaum organism, whilst the other was pneumococcal. Of the four cases in which puncture fluid was submitted to me for examination, one yielded *crassus* only, one was sterile, and the two others yielded pure Weichselbaum.

I would now say a word as to the agglutination of meningococci by the blood of patients suffering from the disease. Not having had at my disposal in any of my hospitals a single case of the disease available for clinical study, my observations on this point are very few. By kind permission of Dr. Day, the medical superintendent of Cork St. Fever Hospital I obtained specimens of blood from three cases supposed to be epidemic cerebro-spinal meningitis. This was in February, when I had not as yet in my laboratory the genuine meningococcus, but was working on the Gram-positive organism obtained from Case IV. The serum of one of these three cases (O'G., aged two years eleven months, discharged cured March 13, 1907, after thirty-one days in hospital) exercised a marked and rapid agglutinating action on broth-suspensions of *crassus*, in a dilution of 1 : 10 and 1 : 50. My own serum in similar dilution exercised no such effect. This lantern-slide, which I have had painted from

Digitized by Google

the fixed and stained hanging-drop, will serve to give an idea of the size and compactness of the "clumps" of diplococci. [Demonstration]. On the other hand, the serum of neither of the other cases exercised any such effect on this coccus. Afterwards, when I had obtained the genuine Weichselbaum organism from the Holles Street case (No. VI.), I tried the effect of the serum of these three cases on it, with doubtful results. I found it hard to get uniform emulsions, and could not make up my mind that agglutination had really occurred.

In the prophylaxis of this disease much stress is very properly laid on the discovery and isolation of coccus-bearing "contacts." The mere discovery of Gram-negative intracellular diplococci in the nasopharyngeal mucous membrane is not enough to stamp the individual as dangerous. Recent work has shown that in this situation various sorts of Gram-negative cocci are liable to occur in healthy persons who have never been in contact with cases of epidemic cerebro-spinal meningitis. In culture, as under the microscope, it is not always an easy matter to distinguish these non-pathogenic organisms from the genuine meningococcus. The use of sugars for this purpose already practised by von Lingelsheim in Germany has been made the subject of a very thorough piece of work by Mervyn Gordon (Report to the Local Government Board on the Micrococcus of Epidemic Cerebro-Spinal Meningitis and its Identification). Now, at the time I was working at these organisms the only Gram-negative organisms of the group in my possession was the genuine meningococcus. Swabs producing other Gram-negative forms did not come in my way. But I thought it might not be devoid of interest to observe the behaviour of the only pseudo-meningococcus I possessed (*crassus*), as compared with that of the genuine

Digitized by Google

Weichselbaum organism, and of a genuine staphylococcus obtained from a case of acute osteomyltis.

The medium used was broth containing about one-fifth of its volume of ascitic fluid, one per cent. of the sugar and litmus till the tinge was a pure transparent violet. Similar results were obtained with stroke cultures on similarly tinged serum-agar containing the sugar. The results with the four sugars which I first used may be set forth as follows, the sign + indicating slight reddening, ++ decided reddening, often with reduction, and the sign —, no change.

	Dextrose	Galactose	Maltose	Saccharose
Crassus -	++	++	+	++
Meningococcus	+	+	++	—
Aureus -	++	++	++	++

I found that *aureus* acted strongly on all the four sugars; that crassus behaved weakly towards maltose; and that, on the contrary, the meningococcus produced most acid from that sugar, less from dextrose, and still less from galactose, whilst it left the saccharose medium unchanged. I show upon the screen drawings which illustrate these colour-changes, and propose to complete my study later on, when I have other Gram-negative cocci such as *catarrhalis* and the Gono-coccus for the purposes of comparison.

[1] Zt. f. Hyg. XXXIV.
[2] Arch. Gén. de Méd. VII. 1902.
[3] Münch. med. Woch. 1905.
[4] Zt. f. Hyg. 1904. Vol. 46.

Professor White said his experience in regard to fulminating cases was directly opposite to Professor McWeeney's, who had stated that very few organisms were found in such cases. In fluids obtained from two children who died in the Meath Hospital

Digitized by Google

after less than three days' illness the organisms were extremely numerous, and the number of colonies obtained were very great; the same applied to a Cork Street Hospital case which was stated to be absolutely well on the 19th and died on the 21st. He believed that we had not the smallest notion of why the disease was epidemic, and that we should start in the investigation of it from the standpoint of absolute ignorance. He was personally inclined to think that auto-infection played a greater part in the infection of the individual than the actual transference of the organisms from persons to persons. They were rarely found in the front part of the nose, but were easily got in the naso-pharynx. One investigator found them in seventeen out of twenty-four relatives of sick people. In one case he had examined six contacts, and, although the examination was not as thorough as it might have been, he found the meningococcus in two of them. Other organisms were obtained along with the typical meningococcus, which he was inclined to look upon as of considerable importance. The entrance of the organism to the brain was probably gained by passing along the lymphatic sheaths of the great vessels.

Dr. Rowlette wished to know if any attempt had been made to separate outside the body the toxin which was set free by the breaking up of the organism. Attempts to inoculate animals with living organisms had failed, but it did not follow that they could not be affected by the toxins.

Professor McWeeney, in reply, said he did not regard the point about the fulminating cases as very important. He had had only one experience, yet he had found it to be the same as others. As regards auto-infection, the experience of those who had swabbed cases was that amongst persons who had no relation whatever to the disease it was of the utmost rarity to get an organism which could be proved to be the meningococcus. The hypothesis that the organisms gained entrance by the lymphatic sheaths was a highly tempting one, if any evidence could be found in its favour, but there was none. Experiments had been made with the object of seeing whether the meningococcus secreted a toxin in its culture fluid, and it has been unanimously decided that it did not secrete any toxin of any great power. It was not at all easy to get endo-toxins out of protoplasm by ordinary

Digitized by Google

methods of breaking it up; it had been done in the case of the typhoid toxin, but it was a difficult and costly investigation. In order to get at the ferment in the yeast cells it has been found necessary to grind them with sand, and he had no doubt that, if a sufficient quantity of the organism could be got together in a healthy state, and treated in that way, an endo-toxin would be obtained.

Digitized by Google

ON THE OPSONIC INDEX AND THE THERAPEUTIC INOCULATION OF BACTERIAL VACCINES.

By ARTHUR H. WHITE,
Professor of Pathology, Royal College of Surgeons in Ireland; Pathologist to the Meath Hospital and to Cork Street Fever Hospital, Dublin.

[Read in the Section of Pathology, May 3, 1907.]

Few pieces of recent laboratory work appear to be so pregnant of practical utility, and certainly no piece of recent work has been so stimulating, as that of Wright and Douglas on opsonins and bacterial inoculations.

Theoretically, the possibilities of the therapeutic inoculation of vaccines in bacterial diseases are limitless; and, if only one-hundredth part of these are ever realised, the treatment of such diseases will have undergone a revolution, and medicine will have added to its armoury new weapons of great and real power.

The object of the following paper is to set forth, as impartially as possible, the general results of the writer's own work, and to state the conclusions at which he has arrived in regard to the statements and claims put forward by the originators of the method of treating certain infectious diseases by the inoculation of vaccines in doses and at intervals determined by the estimation of the opsonic contents of the blood.

The statements and claims referred to are briefly as follows:—

1. That in normal blood there are present in fixed amounts substances of a protective nature called *opsonins*, whose function it is to prepare bacteria for ingestion by the leucocytes.

Digitized by Google

2. That these *opsonins* are specific in their nature.

3. That a person who is the subject of a local infection has less of the specific *opsonin* in his blood, or, in other words, has a lower "opsonic index" to the micro-organism causing the infection than a normal individual.

4. That in such a case the amount of this protective substance may be increased (*i.e.*, the "opsonic index" may be raised) by the inoculation of a vaccine prepared from dead cultures of the micro-organism concerned.

5. Finally, that by the inoculation of suitable and properly interspaced doses of the vaccine the opsonic index is raised and maintained at a high level, and in consequence of the blood being thus rendered rich in protective substances[1] improvement, and finally cure, results.

It is quite clear that such claims cannot be lightly passed over, but should be investigated in the fullest possible way. On the one hand we must consider them without being carried away by undue enthusiasm in their favour, and on the other hand we must not allow ourselves to be blinded by any prejudice in favour of the older methods, which though certainly less laborious are possibly less reliable.

The method of determining the opsonic index is by incubating for fifteen minutes, at 37° C., a mixture made in a capillary pipette of equal parts of (1) "washed corpuscles" (*i.e.*, corpuscles freed from all traces of plasma), (2) an emulsion of the micro-organism, and (3) serum from the patient whose blood is being tested. The number of organisms engulfed by, say, fifty polynuclear leucocytes are then counted and compared with unity, which is the number found in fifty polynuclear leucocytes in a similarly prepared film made from a mixture of equal parts of (1) the same "washed corpuscles," (2) the same emulsion of bacteria, and (3) the serum

[1] Wright also has shown that immunising substances, other than *opsonin*, are increased in amount by the inoculation of these vaccines.

Digitized by Google

of a normal individual. Estimations of the opsonic contents of sera obtained from several cases may be made more or less simultaneously. Thus, the following table gives full particulars of one day's batch :—

	Patient's Initials	Disease	No. of Tubercle Bacilli found in 50 Corpuscles	Tuberculo-Opsonic Index
1.	W. W.	Tubercular glands	225	.85
2.	J. S.	? Tubercular hand	255	.96
3.	E. L.	Tubercular glands	166	.62
4.	W. O'C.	Tubercular knee, &c.	357	1.35
5	P. R.	Tubercular hip	201	.76
6.	R. O.	Lupus	234	.88
7.	*Pool*	(Being a mixture of sera obtained from 4 healthy people)	264	1.
8.	M. H.	Lupus	203	.76
9.	N. R.	Lupus	233	.88

The differences in the numbers of bacteria taken up by the leucocytes in the various cases given above depend on differences in the quality of the sera, for the mixtures from which the films were made were treated identically, and so far as their composition is concerned the only variable constituent is the serum. Hence it may be noticed that the sera of these different cases vary as regards the power of inducing phagocytosis. Thus the serum of E. L. (No. 3) has only .62 of the power possessed by the mixture of normal sera (No. 7), which is looked upon as unity; while, on the other hand, the serum of W. O'C. (No. 4) has almost half as much power again as that of normal serum—that is to say, E. L.'s serum possesses a low, while W. O'C.'s serum possesses a high, opsonic index.

It can be readily shown that when the serum is omitted from the mixture from which the films are made practically no phagocytosis occurs. Thus mixtures of equal parts of washed corpuscles, of an emulsion of tubercle bacilli, and of

Digitized by Google

normal saline solution, gave results as under on different occasions :—

	Opsonic Index
Where corpuscles were twice washed	- .14
„ „ „ thrice washed	- 0.
„ „ „ „ „	- .04
„ „ „ „ „	- .09

and so on.

Similar negative results are obtained from mixtures of the washed corpuscles and the emulsion of tubercle bacilli only.

It may here be mentioned, in parenthesis, that most of the writer's work has been done in connection with tuberculous cases, and consequently his remarks will, for the most part, be confined to tuberculous affections, except when it may be easier to illustrate certain points by effects obtained in acute processes. In such instances the results obtained in coccal cases will be utilised.

Having then determined that there is something in the blood serum which aids or induces phagocytosis, the following tables will show that there is less of this in the blood of people with local infections :—

CASES EXHIBITING TUBERCULOUS GLANDS

Patient's Initials	Opsonic Index
A. D.	.23 / .29
E. B.	.28
B. W.	.38
W. W.	.40
B.	.42
L. C.	.64
J. C.	.65
M. H.	.67
J. K.	.68
E. L.	.71
L. D.	.84
W. W.	.85
J. R.	.87
M. M'B.	.90

Digitized by Google

LUPUS CASES.

Patient's Initials			Opsonic Index
C. H.	-	-	.35
M. W.	-	-	.35
M. L.	-	-	.43
N. L.	-	-	.47
A. D.	-	-	.70
M. H.	-	-	.76
L. D.	-	-	.78
E. T.	-	-	.82
M. M.	-	-	.87
R. O.	-	-	.88
M. M.	-	-	1.11

CASES OF TUBERCULOUS BONE DISEASE.

D. R.	Spine	-	.16 .33
J. O'T.	Spine	-	.28
P. G.	Hip	-	.38
K.	Spine	-	.39
W. B.	Finger	-	.41
J. H.	Wrist and ankle	-	.50
M. C.	Spine	-	.56
P. R.	Hip	-	.70
J. M.	Spine, &c.	-	.73
J. G. H.	Hip	-	.81
C. B.	Rib	-	.85

OTHER TUBERCULOUS CONDITIONS.

Mrs. H.	Os uteri	-	.52
B.	Cystitis	-	.60
S. M.	Peritonitis	-	.53
F.S.	Peritonitis	-	.80
L. M.	Cystitis	-	.83
W. L.	Seminal vesicle	-	.84
C.	Epididymis and testis	-	.84
F. G.	Peritonitis, &c.	-	1.07
C.	Early phthisis	-	.76 .96 .87
K. Q.	Early phthisis	-	.90 .58 .60

Digitized by Google

The above tables show very clearly that people with local infections possess a low index—*i.e.*, they are less amply supplied with protective substances than ordinary individuals. In cases, however, where the disease is not of a limited nature the low index is not the rule, but there is found instead a great variability in the opsonic index when the blood is examined at different times.

CASES OF EXTENSIVE TUBERCULOUS DISEASE.

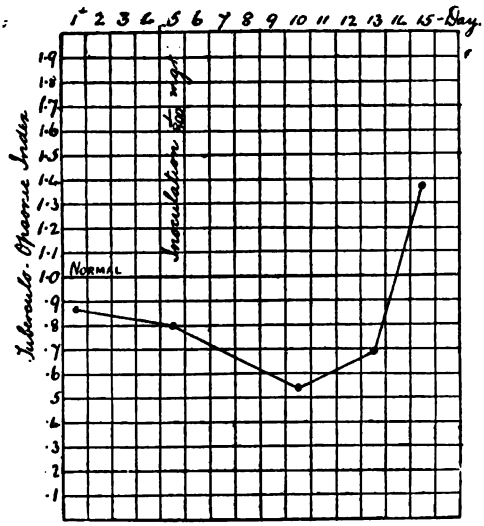
Patient's Initials	Disease	Opsonic Index
H. M.	Multiple joint disease	1.86 .69 1.12 1.32
W. O'C.	Knee, glands and apical phthisis	1.20 1.01 1.35
P. K.	Spine and phthisis	1.01 .54 1.23
H. P.	Advanced phthisis	.60 .88 1.37 .79 1.14

Thus it is seen that in cases of extensive disease the opsonic index displays great irregularity; at one time being nearly twice normal, on another occasion perhaps only half normal, and again it may be in or about normal. Before touching on the reason for this great irregularity it will be necessary to call attention to the effects of a dose of vaccine. Wright has clearly demonstrated these effects. He has shown that "upon the inoculation of a vaccine there supervenes a period "of intoxication which is characterised by a decline in the

Digitized by Google

"anti-bacterial power of the blood." This, which he calls the "negative phase," is "more or less accentuated and prolonged according as a larger or smaller dose of the vaccine is inoculated." The following curve exhibits a "negative phase" resulting from the inoculation of $\frac{1}{800}$ mg. of the tubercle vaccine (T. R.—Koch's new tuberculin).

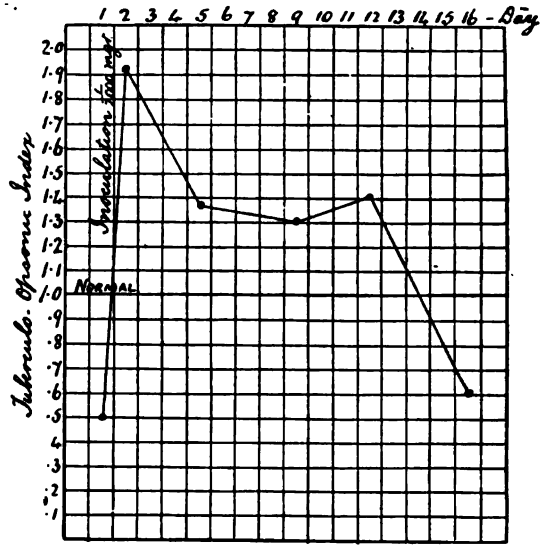
The negative phase is followed by a "positive phase," in which the anti-bacterial substances as represented by *opsonin*



are largely increased. The immediate rise or "flow" is followed by a fall, or by what Wright calls the "reflow," and then for a period which is variable the opsonic content of the blood remains at a higher level than before inoculation. Finally, however, a fall to the original level occurs. Wright speaks of the train of events following inoculation as "the "ebb, flow and reflow, and subsequent maintained high tide "of immunity." The following curve illustrates the positive phase effects of a dose of $\frac{1}{2000}$ mgr. of T. R. The negative

Digitized by Google

phase is not seen in the curve, as it had passed away in the twenty-four hours which elapsed between inoculation and the first subsequent blood examination.



During the negative phase period, when the protective substances are diminished, the disease progresses; while it recedes during the period of the positive phase and "maintained high tide" owing to the large increase in anti-bacterial power.

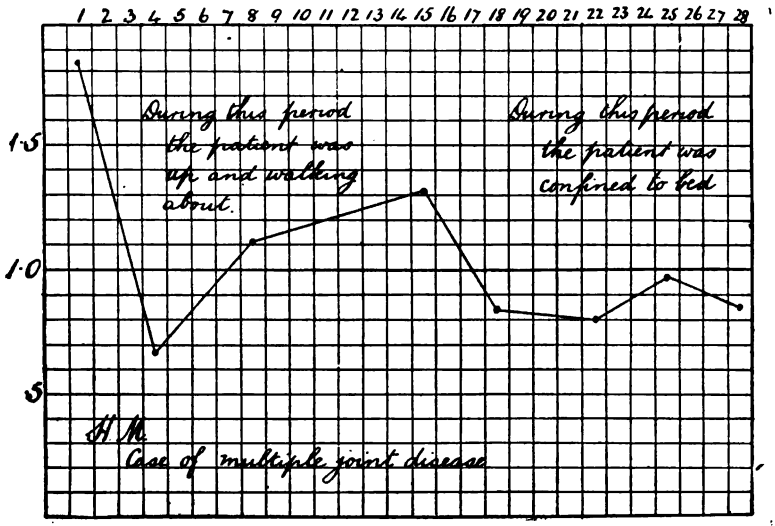
With the results of a dose of vaccine in mind one naturally concludes that the variations in the opsonic index in cases of the more extensive disease express the effects of varying quantities of bacterial products passing from the diseased areas at irregular intervals into the immediate neighbourhood, and giving rise to effects similar to those produced by vaccines when inoculated—that is to say, the depressions and elevations of the index in these cases correspond to

Digitized by Google

irregular negative and positive phases produced by auto-inoculations.

If this explanation be true it should be possible on the one hand to get rid of or lessen such auto-inoculations by rest, and on the other hand to induce auto-inoculations from local foci of disease by exercise. Both can be done.

The following curve, for example, shows how a patient with multiple joint disease exhibited a very variable index while moving about the hospital wards, but subsequently, as the



result of being kept quiet in bed, showed a low and comparatively steady index.

A similar result may be seen in the earlier portion of W. O'C.'s curve given opposite p. 400, where, prior to treatment, auto-inoculations were eliminated by keeping the patient in bed.

It is quite easy to demonstrate, as the result of massage of

Digitized by Google

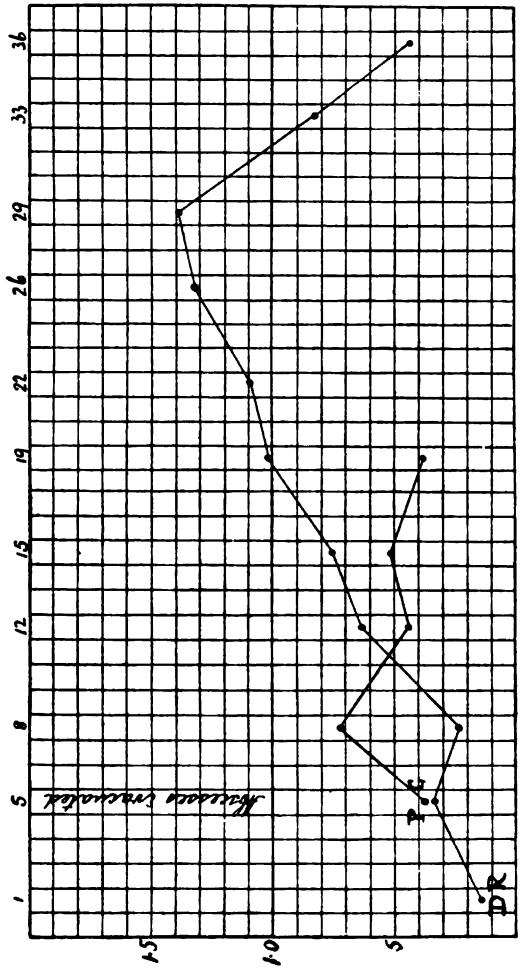
a localised focus of disease, an alteration, or rather a series of alterations, in the index similar to those got by the inoculation of a vaccine. Or, again, let a phthisical patient be examined, made to sit up in bed, to breathe deeply, say "999," and so on, and it is possible to demonstrate a rise of the index which passes off in a few hours. Such a rise is obviously an effect of a tiny auto-inoculation. When a comparatively trifling thing like this will cause an auto-inoculation, we need not wonder to find that a patient with advanced phthisis shows an extremely variable and irregular index.

Perhaps, however, the most interesting of the auto-inoculations are those associated with operations. The effects of surgical operations on the opsonic index are, though sometimes very striking, by no means uniform. In some instances we get, as the result of operation, no marked effect on the index. In other cases we may get a negative followed by a positive phase, or else a positive phase without any appreciable negative one—that is to say, we get the phenomena associated with the inoculation of a large or a small dose of vaccine. In still another, and perhaps the smallest, group of cases the negative phase is slight in extent and duration, and the positive phase is of a character wholly different from the positive phase obtained as the result of a simple inoculation, the rise of the index to its full height being very gradual and then frequently maintained at or near the maximum for a long period. The longer (D. R.) of the two curves given opposite illustrates this latter class. The shorter curve (P. G.) is an illustration of a very slight effect of an operation on the index.

These cases furnish interesting contrasts in all respects. Each had a large abscess evacuated on the same day. P. G.'s index rose but little and soon fell to its previous level; clinically he showed no improvement. On the other hand D. R. exhibited a slight negative phase, but this soon passed off, and the index rose and continued to rise steadily in the

Digitized by Google

manner and during the period indicated by the curve.[a] Her condition clinically showed a continuous improvement during



the time the index rose and remained high. When at length the opsonic content of the blood fell to near the original level,

[a] The figures at the top of this and all the other curves stand for so many days. The top of this curve is to the left.

Digitized by Google

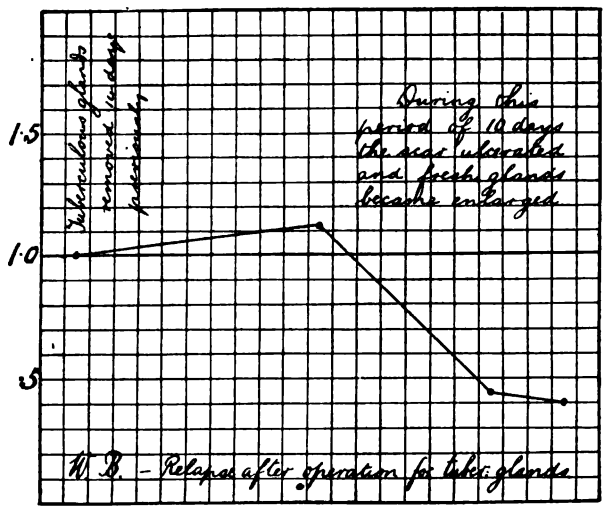
the little girl experienced a marked relapse. She, however, ultimately became perfectly well during the subsequent treatment by the inoculation of tubercle vaccine in doses varying in size from $\frac{1}{2000}$ to $\frac{1}{1500}$ mgr. of T. R. The following figures also help to illustrate the effect of operation on the opsonic index :—

Patients Initials		Tuberculo-opsonic Index
F. S.	Tuberculous Peritonitis—	
	Day of operation - - -	.80
	5 days after operation - -	1.03
	9 „ „ - - -	.93
	12 „ „ - - -	.70
S. C.	Excision of Tubercular Ribs—	
	2 days after operation - - -	.69
	7 „ „ - - -	.91
	14 „ „ - - -	1.15
	20 „ „ - - -	1.20
	Patient left hospital well.	
N.	Tubercular Kidneys removed—	
	Day of operation - - -	.57
	2 days after operation - -	.20
	7 „ „ - -	.72
B. M'D.	Tubercular Kidney removed—	
	7 weeks after operation - -	1.24
	8 „ „ - -	.97
	9 „ „ - -	1.07
	10 „ „ - -	.79
	From this on the patient's index remained sub-normal.	
A. F.	Tubercular glands removed—	
	3 weeks after operation - -	1.25

These figures are very significant, and help to explain some of the clinical results in tuberculous cases where only a part of the diseased focus is removed. Such a case sometimes completely recovers. Frequently, however, though marked

Digitized by Google

improvement continues for a time, followed it may be by a period during which the disease remains stationary, relapse ultimately occurs with involvement of fresh areas. So long as the index is high—*i.e.*, so long as the blood is rich in protective substances—improvement continues and the residual disease lessens. If the protective influences are at work sufficiently long, complete cure results. Where relapse occurs the relapse is coincident with a fall in the index. This has been illustrated already in the case D. R., and the following curve furnishes a further illustration :—



Both of the cases (D. R. and W. B.), mentioned as illustrative of relapse following an improvement after operation, were finally brought to a successful issue by the inoculation of suitable doses of T. R. properly interspaced.

The increase of anti-bacterial substances in the blood is not the only good effect obtained by operation. Wright has pointed out that the infected area is one of low bacteriotropic pressure, meaning thereby that the infected area is far less rich

Digitized by Google

than elsewhere in protective substances. So far as *opsonin* is concerned this is easily proved. It will be seen from the following examples that the opsonic content of the blood serum is generally markedly greater than the opsonic content of the pathological fluid obtained from the diseased area.

Patients Initials		Tuberculo-opsonic Index
S. M.	Tubercular Peritonitis—	
	Blood serum	.53
	Peritoneal fluid	.28
J. B.	Tubercular Meningitis—	
	Blood serum	.92
	Cerebro-spinal fluid	.06
C. B.	Tubercular Rib—	
	Blood serum	.91
	Pus serum	.62
H. M.	Multiple Tubercular Joint Disease—	
	Blood serum	.81
	Pus serum (back)	.51
	Pus serum (wrist)	.38

A vigorous interchange between the fluids in the affected area and its neighbourhood and the general body fluids may result from the disturbance created by operative procedure. Hence bacterial products giving rise to inoculation effects are sent outwards, and fresh fluids, rich or comparatively rich in protective substances, come inwards to take the place of those which had been removed. Thus there may be a double beneficial effect after operation—viz., a general rise of the index, and a local substitution of a fluid poor in anti-bacterial substances by a much richer one. For example, a large tuberculous abscess pointing near the great trochanter was opened and evacuated. The tuberculo-opsonic index of the blood serum was .33, while that of the pus serum was .04, or

Digitized by Google

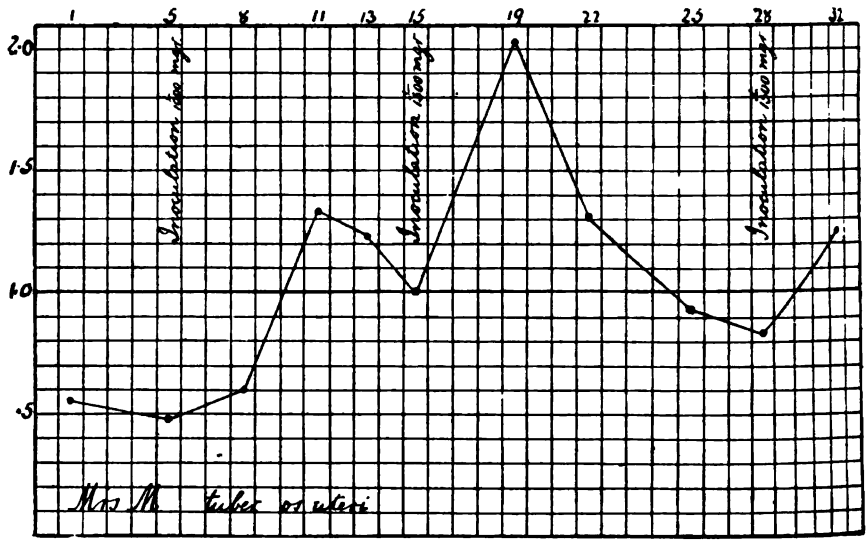
practically *nil*. Seven days afterwards, when the fresh accumulation was evacuated, the blood index had risen to .62 and that of the pus to .57.

Hence, in certain instances, the surgeon appears to have unconsciously carried out to some extent the principles of the therapeutic inoculation of bacterial vaccines. As already indicated, in many cases the beneficial inoculation effects induced by the operation do not last sufficiently long to effect the complete cure of the residual disease, but after a period of improvement relapse occurs. A study of the index shows relapse to follow its fall. Relapse, however, may be avoided, and the work of the surgeon in most instances crowned with success, while at the same time the patient will be saved much future misery and suffering from further and often fruitless operations, if at the time the auto-inoculation effects of the operation are passing away the patient is inoculated with suitable and properly interspaced doses of vaccine.

This class of case, however, is not the only one in which good results are obtained from the inoculation of tubercle vaccine controlled by estimations of the tuberculo-opsonic index. Improvement and cure will result in any case where the index can be raised from its sub-normal position and maintained more or less continuously above normal for a sufficiently long period, and this in conditions which are not amenable to ordinary surgical treatment. Thus after twelve weeks a case of tuberculous cystitis left hospital practically well. During her stay in hospital she got seven inoculations, and, from a condition which compelled very frequent micturition and in which the urine contained large numbers of tubercle bacilli, she passed gradually to one in which the bacilli, even after repeated examinations, could not be found in the urine, and in which she was not obliged to pass water more than once at night. Again, a case of tuberculous disease of a seminal vesicle got completely well after seven injections

Digitized by Google

spread over about four months. The curve below exhibits the effect of inoculations on the tuberculo-opsonic index in the case of a young married woman suffering from profuse vaginal discharge due to tuberculous ulceration of the *os uteri*. The discharge, which contained numerous tubercle bacilli, rapidly diminished, and the general condition of the patient improved amazingly. A vaginal examination, made after twenty-two days' treatment, showed a distinct diminution in the size of the



ulcer, and some days later the patient insisted that she was quite well, and refused to stay in hospital any longer. Unfortunately the inoculations could not be continued outside, as her home lay far from Dublin. Enquiries made some months afterwards showed the improvement to be fully maintained.

If by the inoculations a continuously elevated index is not maintained, and marked interruptions in the nature of negative phases occur, the disease fluctuates, diminishing while the index is high and progressing, often very rapidly, while it is

Digitized by Google

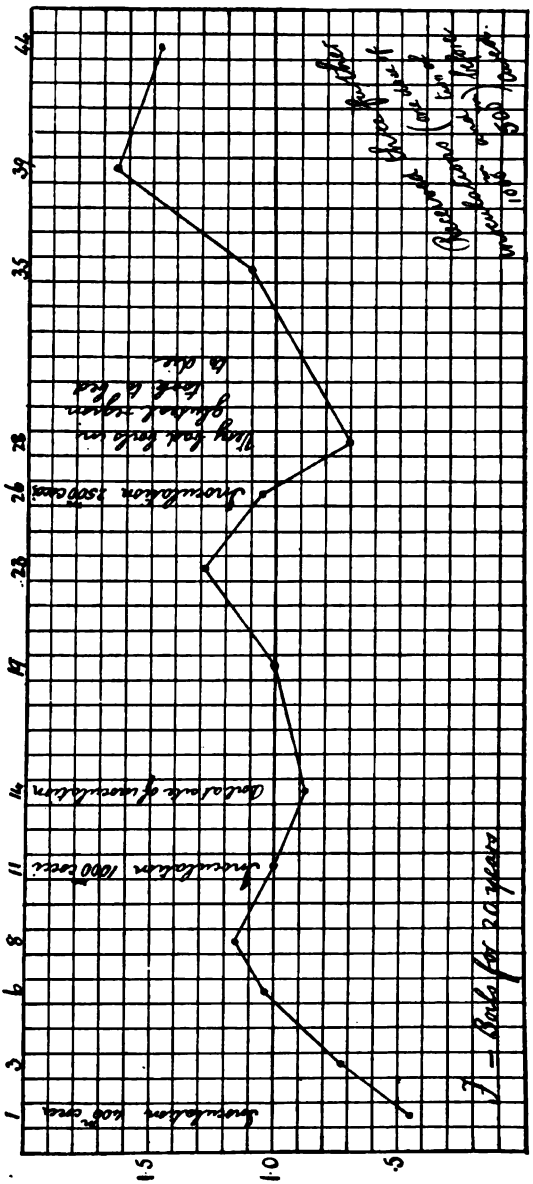
low. This can be seen by a careful study of tuberculous cases, but can be more easily demonstrated in acute infections. The two following curves from cases of furunculosis in a father and daughter furnish excellent illustrations of the manner in which disease tends to progress when the index is low and to recede when the index is high.

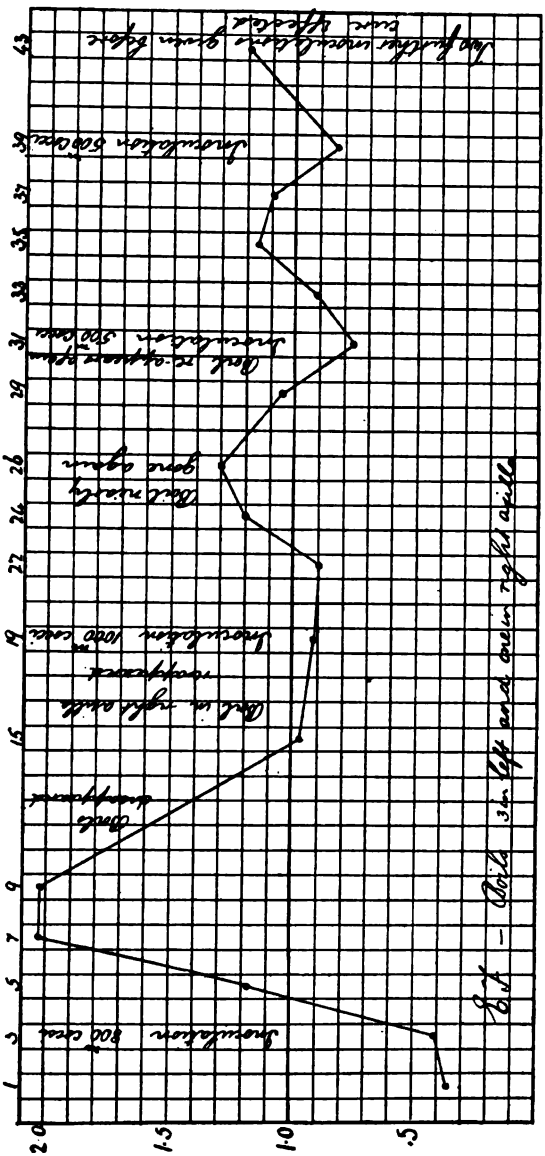
It will be noticed in the curve of case F. (page 396) that the earlier doses, being too large, produced marked negative phases. Clinically at these times the existing boils became distinctly worse, and fresh ones appeared. During the positive phases more or less amelioration occurred. In such a case as this the increased anti-bacterial power of the blood during the positive phase has to combat the existing disease reinforced by the negative phase effect. Hence the net result of an inoculation may be an increase of the disease rather than, what is desired, a diminution. The cure of this patient was not effected until the dose was reduced, so that the negative phase effect was practically eliminated and a series of successive positive phases obtained.

From the curve in case E. F. (page 397) it can be seen that as a result of the first inoculation the boils in the girl's axillæ disappeared completely, but so soon as the effects of the inoculation died away one of the boils reappeared, and continued to get larger until the index was again raised by a further inoculation. This clearly shows that the disease tends to disappear with the high index and progresses with the low, so that treatment may be, as in this case, unduly prolonged by pronounced delays between inoculations.

Most of the difficulty of keeping the index at a high level is due to one's own deficiencies or inexperience. Occasionally the difficulty lies with the patient. Some patients differ enormously from the average, both in regard to the size of the dose and the power of response. For example, 400 million cocci will ordinarily produce but a slight negative

Digitized by Google


1·5
1·0
·5
1
3
6
8
11
14
17
23
26
28
35
39
44



Digitized by Google

phase, and yet in a case of chronic acne in a young girl the writer found that even an eighth of that dose produced a marked negative phase effect. Again it happens that a patient responds well to a few first doses of vaccine and subsequently ceases to respond. In one such case, after stopping inoculation for a time, the patient again responded when later on inoculations were resumed.

Having then arrived at the conclusion that good results are to be obtained when the index is maintained at a high level by the inoculation of properly interspaced doses, the next question to be decided is whether similar good results are obtainable, without all the trouble of blood examinations, by merely giving small doses at intervals of ten or twelve days. The reply to this must be an emphatic NO, and for many reasons. Some of these reasons are already apparent.

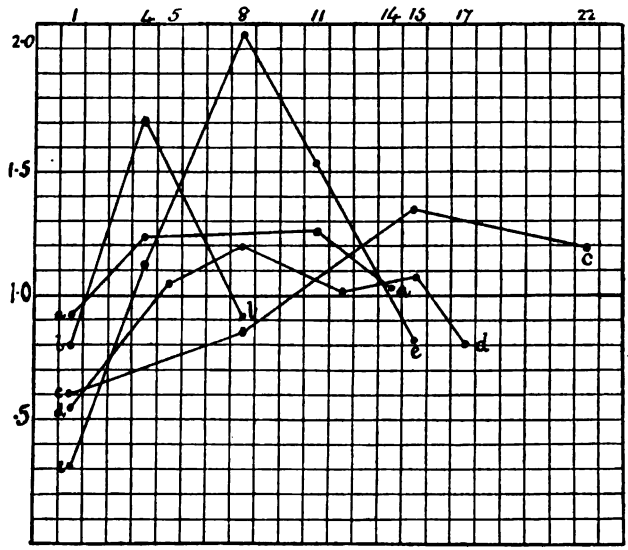
In order to get the best results the size of the dose most suitable to the individual patient must be determined, and also the duration of its effects. Take a dose of a given size, inoculate a number of patients with it, and its full effects, negative and positive, will be seen to vary very considerably. The following diagram shows the duration of effect of the inoculation of $\frac{1}{1000}$ mgr. of T.R. in five different cases of tuberculous disease.

(*a*) Case of cystitis—15 days.
(*b*) Case of glands—7 days.
(*c*) Case of glands which relapsed after operation—21 days.
(*d*) Case of early phthisis—16 days.
(*e*) Case of glands—14 days.

Some cases may do well by routine inoculations, but a great many will not, because if a dose is repeated too soon a negative phase may result from the second inoculation, and a still more accentuated one from the third dose, and so on,

Digitized by Google

until finally it may happen that a continuously low index is induced. As a consequence, in such a case positive injury results, and the treatment is unjustly discredited. If the dose is too large the good effect of the positive phase will be more than neutralized by the evil of the negative—*i.e.*, as we have already seen the positive phase carries the double load of combating not only the existing disease but the increase of the same which results during the negative phase.



On the other hand, if the dose is too small the index is raised only for a portion of the interval between the doses, and treatment is unduly prolonged. This is, of course, a lesser evil.

The size of the dose most suitable to a patient is that which gives a negative phase, measured by hours and not by days, and this can only be determined by blood examination. A dose which gives only a slight negative phase with one patient may give a marked negative phase with another, and occasionally will give one which may be recognised clinically by head-

Digitized by Google

ache and malaise. The writer has known a dose of $\frac{1}{1200}$ mgr. of T. R. give a mild but distinct "tubercular reaction," and there is a wide gulf between such a reaction and the negative phase, which lasts less than twenty-four hours, and which can be recognised by blood examination alone. As we have already seen that negative phases are distinctly bad, the necessity for the administration of doses which give minimal negative effects is obvious.

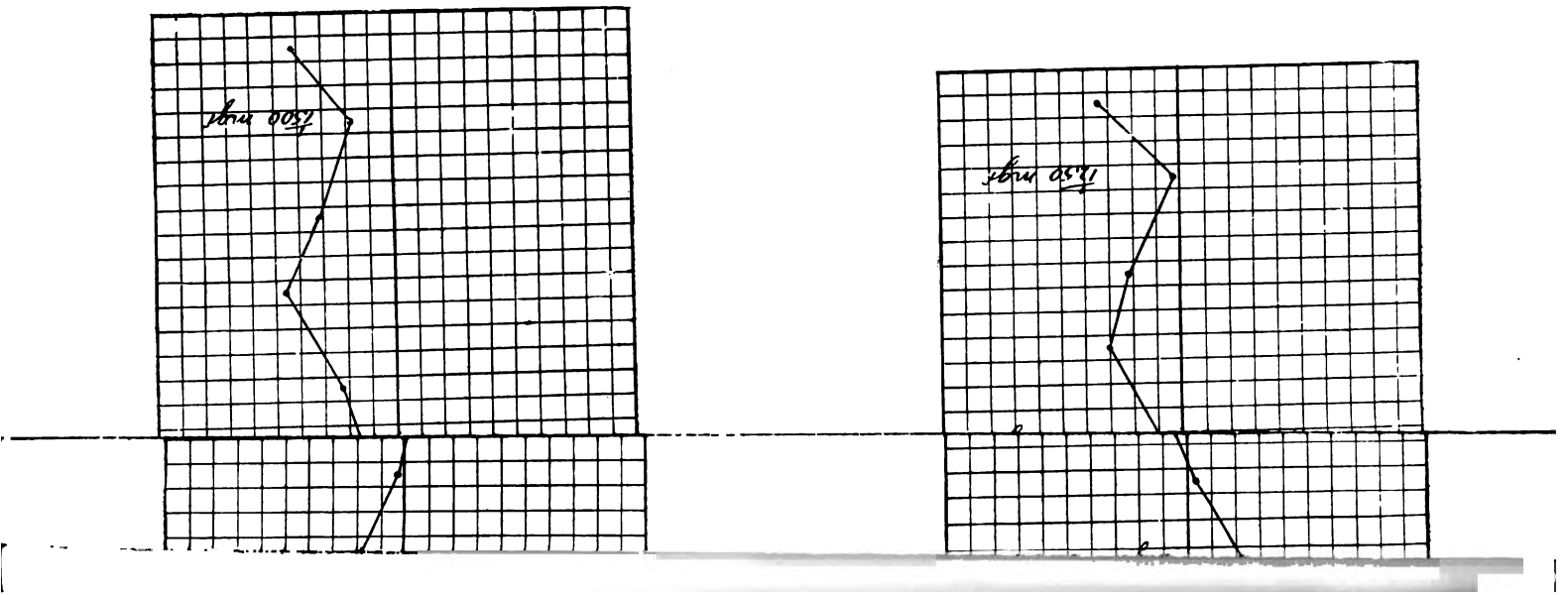
Having then determined the size of the dose the next important thing is to ascertain how long its action will last, as no further dose should be given until the effects of the previous one are passing off.

If the dose suitable to the patient and the period of its duration are determined it will then, in ordinary cases, only be necessary to examine the blood twice during an inoculation period—on the day of inoculation and on the next day. If on the latter day the index is higher than it was the day before all is right; if, on the contrary, it is lower it probably means a premature inoculation.

Too much stress can hardly be laid on the fact that good results depend largely on the success of one's efforts to keep the index continuously at a good average level. In other words, the whole secret of successful treatment is to induce a succession of positive phases with as little interruption between each as possible either from negative phases or from undue delay in the administration of the doses.

A study of the complete curves in the cases W. O'C. and J. O'T., facing this page, will show that, in each instance towards the termination of the treatment an almost ideal condition of the tuberculo-opsonic index was reached. Both patients did remarkably well. When the former first came under observation he had left apical phthisis, a number of suppurating glands with many old scars, and tubercular synovial disease of the knee-joint with three discharging

Digitized by Google



Digitized by Google

Digitized by Google

sinuses. When the auto-inoculations which he was evidently receiving were eliminated by putting him to bed and keeping him there, treatment began and was continued during a period of twenty-five weeks. One after another of the sinuses healed, and the knee completely regained its normal size and mobility, and this before the tuberculous glands were entirely healed. The pulmonary lesion made no progress during treatment, and still existed when the inoculations ceased. The other patient (J. O'T.) suffered from tuberculous disease of his spine. The tuberculous focus had been carefully scraped, but after several weeks the sinus in the lumbar region showed no sign of healing, and the discharge continued unabated. This patient, a boy of sixteen, received altogether ten inoculations spread over a term of twenty-one weeks. In less than a month the discharge had almost ceased, and after he received the eighth inoculation the sinus was completely healed with a depressed scar; at the same time no discomfort of any kind could be detected over or near the portion of the spine previously diseased. It will be noticed that this patient gained fourteen pounds in weight during the first two months. A gain in weight such as this is frequently observed as a result of the inoculations.

Incidentally here and there in the course of this paper cases have been mentioned which improved or got perfectly well. The writer would like here to make it clear that he has treated many cases of tuberculous disease which exhibited no definite improvement. This may have been his own fault, partly due to inexperience and partly to the fact that he was obliged by the exigencies of other work to limit his interest in these cases for the most part to two days in each week. There is no doubt that this limitation prevented the best results from being obtained. At the same time, however, the writer's notes show that with a single possible exception all cases that showed no marked improvement were treated for less than

Digitized by Google

three months, many of them, indeed, for less than one. To discard the treatment as useless in any tuberculous case after a trial of less than three months shows an inadequate appreciation of the nature of a tuberculous affection.

The possible exception referred to above is a case of phthisis which is still under treatment. During the first five months when inoculations were given and carefully controlled, she improved distinctly. Then a holiday of some seven weeks intervened, during which she got inoculated in a haphazard fashion. At the end of this period she was much worse, and it seemed hopeless to continue treatment. However, when the careful control of inoculations was resumed she gradually improved, and at present appears to be very little better or worse than she was sixteen months ago. The one outstanding fact in connection with the injections in this case is that the patient's evening temperature now ranges between 97.4° and 98.8° instead of between 99.2° and 100.4°.

Another case of early phthisis ended in the complete disappearance of all symptoms after less than two months' treatment. The case was that of a girl of about fifteen years of age, with a consolidated left apex and sputum of a catarrhal nature containing tubercle bacilli.

Of ten tubercular gland cases all improved. Six of them have got perfectly well in 4, 14, 15, 19, 21, and 27 weeks, respectively. The other four are still under treatment. One of the latter, now practically well, has been getting inoculations for upwards of sixteen months. He had been operated on about three months before the inoculations began, but it is impossible to conceive how his condition could be adequately dealt with by any operation or series of operations. The whole front of his chest from shoulder to shoulder was a mass of ulcerated, suppurating and enlarged glands. It is no exaggeration to say that hundreds appeared to be involved. His neck was also ulcerated and full of large suppurating

Digitized by Google

glands. The patient steadily improved from the first. The improvement was continuously maintained, except during the holiday period, at the end of which he presented himself very much worse in many respects than originally. Since then, however, all the enlarged glands except one have disappeared, and every ulcerated one has healed.

Four lupus cases, all extremely bad and very chronic, are under treatment and have been for over a year. One case is nearly well, two have greatly improved, and the other has improved but slightly. It has been found difficult to raise the latter's index, and impossible, so far, to keep it up for many days consecutively.

Although it usually happens that no good results accrue from the inoculations unless the index is raised to or above normal, the writer has seen a case improve where the original sub-normal tuberculo-opsonic index was but slightly increased. Such a case is understandable if we bear in mind that we are measuring *opsonin* merely, as the explanation may be that it alone of the many substances concerned in the immunising process fails to be produced in an increased quantity.

Treatment should not begin and end with the inoculation of suitable doses repeated at the proper times. Every other means likely to help should be employed. Also it must be kept in mind that local conditions may prevent the diseased area from getting the full benefit of the increase in *opsonin* and all that it represents. Hence anything likely to diminish the difficulty of exchange and promote a good flow of lymph to and from the part should be adopted. The surgeon must do all that is possible by removing fluid secretions, pus collections, and necrosed tissues—especially bone. Where possible, as in the case of sinuses, lymphagogues should be used. In some instances the site of inoculation seems of importance. The danger of treating patients while auto-inoculations are going on must never be forgotten.

Digitized by Google

The claims put forward by Wright and his pupils, and enunciated at the beginning of this paper, are in the writer's belief substantially true. The worst that can be said of the therapeutic inoculation of bacterial vaccines controlled by the opsonic index is that the methods are laborious, but what of that if good results, not to be got otherwise, are obtained. In estimating the merits of this method of treating infectious disease it must be remembered that we are striving after an ideal effect, and that the nearer we approximate thereto the better will be our results. Also that this ideal, which is to keep the blood and body fluids continuously supplied with an increased amount of protective substances, cannot be even approximately reached without conscientious care and much labour. As our experience increases and our knowledge of disease and immunity grows greater, improvement in method with lessening of labour must come. It may be that an easier plan of following the immunising process will be devised, but the essential principle of the treatment will remain and be in the years to come one of the greatest factors in practical medicine.

DR. MOORHEAD said that Professor White, in summing up his investigations as substantiating Professor Wright's statements, had done them very great service. As regards the safety of giving doses of the vaccine without following the opsonic index, he had visited Professor Wright's laboratory in the summer, and had found that they were not taking the index frequently. Since then he had continued giving tuberculin injections to lupus cases, but had not taken the index as often as formerly; so far, however, he had seen no bad results. As soon as he saw a case apparently not improving, or getting worse, he at once took the index and stopped injections. He thought it was an error, in connection with the reaction of the serum to be found in local regions, to say that the serum had gone up; he would rather think that the index had gone down from the index of the blood—

Digitized by Google

in other words, the opsonic index was low because the infection had taken place, the opsonin had most likely been used up. Although Professor Wright had given the new hope, he had struck rather a pessimistic note in stating that the reason why people get diseases at all is that they have a low index. A good many cases of cure reverted to the low index; hence, they had to assume that unless they could continue the inoculations throughout life there would be a great tendency to relapse.

The Chairman said it would be a great advantage if a method could be found of obtaining the opsonic index, which would be applicable to institutions where there was no pathologist with enough time to carry on the laborious examinations at present necessary to obtain the index. He had used tuberculin injections for many years, latterly with rather good results; but in most cases he had to go by a rule of thumb method, which was not satisfactory.

Professor White, in replying, said that for routine inoculations lupus was the type of case to select. The falling off in the taking of the index at Professor Wright's laboratory was probably due to the absence of workers on holidays and to the absence of the chief. Anyhow, when one had been making blood examinations in a case for several months one got to know the case extraordinarily well, and could work the inoculations with fewer examinations than at first. He thought the dose that suited the average patient ranged about $\frac{1}{1500}$th or $\frac{1}{1200}$th mg.—that is to say, the dose that would give the minimal negative and maximal positive phase; but there were odd cases where $\frac{1}{2000}$th would be too much. The patients which were improving were those in which he got the index above normal with little variation. The exigencies of other work, however, had not allowed him to treat all the cases exactly as they should be treated.

Digitized by Google

ABSTRACTS.

SECTION OF PATHOLOGY.

President—J. F. O'Carroll, F.R.C.P.I.

Sectional Secretary—Professor White.

Friday, October 26, 1906.

Arthur H. Benson, F.R.C.S., in the Chair.

Pancreatitis.

Dr. Earl exhibited a pancreas, omentum and portion of mesentery from a case of pancreatitis. The two latter showed well marked and extensive fat necrosis.

Dr. W. G. Harvey exhibited specimens, and stated that in his case the patient, aged about sixty, and a fairly stout man, had been complaining of vague pains in the abdomen for four or five days before coming into hospital. He had been drinking heavily, and one morning on going into a public-house fell unconscious, and was brought to the Adelaide Hospital. On admission he was quite unconscious, and breathing heavily. He died in a few minutes. *Post-mortem* showed (1) fat necrosis over the abdominal and mesenteric fat; (2) pancreas enlarged, swollen, dark, friable, and on section showed several large hæmorrhages; (3) gall bladder somewhat distended, but no gallstones. Microscopically the pancreas showed necrotic and hæmorrhagic areas.

Dr. McWeeney said it would have been interesting to learn exactly how it was that, in the specimen shown by Dr. Earl, such a relatively small amount of pancreatic destruction could have resulted in such very extensive fat necrosis. He would also have been glad to know why the fat-splitting ferment exercised its effects upon certain small and isolated areas somewhat removed from the pancreas, while it appeared to spare areas in immediate contact with the pancreas. In regard to Dr. Harvey's specimen, he (Dr. McWeeney) was under the impression that the hæmorrhagic pancreatitis was a microbic affection; but the surgeons

Digitized by Google

present would be able to say whether such hæmorrhagic cases ever went on to genuine suppuration.

Dr. Parsons expressed regret that, owing to the brief time during which the two cases were under clinical observation, it would hardly be possible to obtain answers to all the questions to which they gave rise. He would have liked to know when the cases had been first recognised as pancreatitis, and whether any sugar or Cammidge's crystals were found in the urine. Such crystals might have considerable importance in the diagnosis of pancreatitis—a matter always of great difficulty.

Dr. Earl, in reply, said he had little to add to what he had already stated. They had still to find out a good deal more about the subject than they already knew. He had not had an opportunity of examining the patient's urine, as he was operated upon immediately he was admitted to hospital. He would only add, in conclusion, that the ducts were not affected in any way, and there were no gallstones.

Dr. Harvey, in reply, regretted that, owing to a hurried *post-mortem* for the Coroner, he had not been able to make a complete bacteriological examination. He had stained a section by Gram's method, but found no organisms.

Carcinoma of Breast, with Secondary Growth in Humerus.

Mr. Jameson Johnston detailed the history of a carcinoma of breast, with secondary growth in humerus, and showed microscopic slides.

Dr. McWeeney said that while, as a rule, he was able to say right off whether or not a breast tumour, sent for examination, was a cancer, occasionally a difficult case would crop up like the one described by Mr. Johnston. He recounted, in detail, a case exhibiting characteristics which at first sight appeared to be cancer, but which turned out to be a case of interstitial mastitis. He mentioned the case as an example of the difficulty sometimes met with in cases of breast tumours. It had always occurred to him as peculiar that, although breast cancers are so common, he had never seen a case of secondary cancer of the bone diagnosticated in hospital or found in the *post-mortem* room. This was probably because such cases seldom remained in the hospital to the end.

Digitized by Google

Tricuspid Stenosis.

DR. BOXWELL exhibited a heart showing well-marked tricuspid stenosis, together with lesions of the mitral and aortic valves.

Cryoscopic Work.

MR. L. G. GUNN read a short note on "Cryoscopy of the Urine" (see page 349, *ante*).

Friday, November 23, 1906.

THE PRESIDENT in the Chair.

Pathological Effects of Röntgen Rays on Animal Tissues.

DR. HARVEY reviewed the main steps in the investigation of Röntgen effects since the discovery of the rays in December, 1895. He described Holzknecht's pastilles as the first attempt to measure the quantity of radiations employed, and showed how their employment led to definite laws concerning skin reactions. Passing on to the mode of action of the rays he mentioned Scholtz's view that epithelium is primarily affected, and those of Baermann and Linser and Gassmann, who hold that the effect is chiefly upon the vessels, and detailed the chief experiments of these authors. As to the actual agent causing dermatitis, the author held the Röntgen rays themselves responsible, favoured the trophoneurotic theory, and mentioned some original experiments on the effect of vasomotor disturbance on the phenomena. He quoted the experiments of Perthes, Dalous and Lasserre as favouring a definite selective absorption. Coming to internal organs, he mentioned Heineke's experiments on the spleen, and those of Aubertin and Beaujard on the blood cells. With regard to the question of a Röntgen leucotoxin he related the findings of Helber and Linser, and Curschmann and Gaupp on the one hand, and those of Kleineberg and Zoeppritz on the other. Lepine and Boulard's experiments on metabolism of glycogen were also mentioned. Albers Schönberg's classical experiments on the generative organs were recounted, as were those of Halberstaedter and others. Having mentioned some clinical features of X-ray treatment of pathological interest Dr. Harvey spoke of his own experiments, showing microscopic and lantern preparations.

Digitized by Google

The animals operated on were rabbits and guinea pigs, and the organs chiefly examined were the spleen, ovaries, testicles, and suprarenals. The experiments, which are in a preliminary stage, so far support Heineke's results in regard to the spleen. The germ centres of the Malpighian corpuscles were observed to be the first to suffer. Chromolysis and diffuse nuclear staining are present in most of the sections, and affect chiefly the young and proliferating cells. Vaso-dilatation and congestion are also common. The ovarian and testicular changes were similar to those described by previous authors. Dr. Harvey found congestion and hæmorrhages in the suprarenals of all animals subjected to X-ray treatment.

Dr. Stevenson mentioned vesication as occurring in lupus in an area of the skin which had previously been exposed to the Finsen light. The application of the X-rays had made the skin react at that particular part, while there was no vesication or marked reaction in the surrounding parts.

Dr. Walter Smith considered the paper of great general interest from the point of view that such pathological observations bridged over the interval between normal physiology and therapeutics which might be called applied physiology. Broadly speaking, they might regard the action of Röntgen rays and the like as an act of stimulation; but they need not attempt to distinguish too narrowly between the phenomena of excitation and depression, since they were but quantitative opposites which followed from continued application of the same stimulus. The nature of the Röntgen rays had long been a puzzle to physicists. Now, however, it was agreed that they represented ethereal pulsations, and did not correspond in any way to a molecular bombardment. In discussing the physiological or pathological action of the rays, he thought it was impossible to form any satisfactory conception, unless they also took into consideration other therapeutic agencies with which they were familiar, such as the Finsen rays or radium. It was, he thought, rather unfortunate for students that the word "ray" had acquired two different significations. It retained its old meaning of undulatory vibrations of the ether, and was also applied to a direct stream of particles like the hail of tiny projectiles from radium. To get at a satisfactory explanation of the phenomena would require a

Digitized by Google

thorough knowledge of the effects of all sorts of vibrations of different wave lengths not only on animal but on vegetable tissues, distinguishing between the action on the higher and lower forms of vegetable life. The first indication of the therapeutic value of the rays arose, about 1900, out of the observation of their depilatory effect. It was premature to expect a coherent or fully satisfactory statement at the present time.

Dr. C. M. Benson said that he had been handed over patients who had been treated for lupus by the Finsen light, and in his experience there had been no formation of vesicles.

Dr. Scott congratulated the Section on Dr. Harvey's contribution, which fixed certain points from which they could advance further. They knew certain tissues on which the rays acted; they might act on others; but that they should act on tissues of such a peculiar nature as the spleen and on the growing cells of epithelium would suggest that possibly growing cells were affected by the rays as they were by differences of acidity and alkalinity.

Dr. Kirkpatrick thought they were perhaps frightened by the bugbear of permanent baldness in using the rays. He knew of a case of a woman in which depilation was produced, and after some months the hair grew more vigorously on her face than before the treatment.

Dr. Harvey, in reply, said he had read of the X-rays having been considered a cause of abortion. It would seem possible that they should have such an effect, as they seemed to show a greater effect on young and actively developing cells than on adult ones. His explanation as to what caused the death of the guinea pigs in his experiments was that the X-rays caused a degeneration of cells, whereby a toxic product was liberated which killed the animals. The toxic effect of the rays had been observed in several cases, and he was in the habit of seeing that patients undergoing the treatment for malignant disease should take aperient medicine. The epithelium of the skin was not at all as sensitive to the action of the rays as that of the testicles or ovaries or spleen.

Digitized by Google

Friday, January 4, 1907.

THE PRESIDENT in the Chair.

Uncinaria duodenalis from St. Vincent (West Indies).

PROFESSOR MCWEENEY, through Dr. Farnan, exhibited specimens of the above sent to him by Dr. Branch, Government Medical Officer at St. Vincent, where the parasite was a regular plague. The exhibit consisted of the washings of the intestine of a child. Two sorts of worms were present—viz., *Trichocephalus dispar* in large tufted masses and *Uncinaria* (*Ankylostoma*) *duodenalis*. The male and female trichocephalus are very different. The male and female uncinaria are not very unlike each other. The difference was shown by microscopic slides. The male uncinaria was smaller than the female. One measured 7.5 mm. long by 0.47 mm. thick [Manson gave 6 to 11 mm. by .4 to .5]. Its remarkable copulatory organ consisted of 2 spicules, beautifully striated under a high power, surrounded by a sort of umbrella-like arrangement supported by 11 ribs. The female was longer and thicker than the male. One measured was 17 mm. long, but was thinner than the male [.37 mm.]. However, it may have been a damaged specimen. Manson gives 1 mm. Another measured .469 in width, so that the females did not seem to agree in width with Manson's average. A new species of uncinaria, called *A. americana* parasitic in man, was described in 1902 by Stiles, and is now made into a new genus called *necator*. It hails from the same neighbourhood as *U. duodenalis*, and does a fearful amount of mischief, especially to children, causing great retardation of development, anæmia and cachexia. The specimens shown, however, seemed to be the ordinary *U. duodenalis*. In Europe the worm chiefly attacks miners, and attention was first called to it in connection with the boring of the St. Gothard tunnel in 1880, when it caused a serious outbreak of a "pernicious" anæmia amongst the workmen. It has recently occurred in England amongst the tin miners of Cornwall, and Boycott and Haldane have written two interesting papers about it in the *Journal of Hygiene*. It causes a marked eosinophilia. He also exhibited a small piece of duodenum showing exceedingly minute black spots, almost needing a lens to see them. These were the bites of the uncinaria, whose organs of attachment and piercing

Digitized by Google

4 hooks and 2 teeth are in the interior of a sort of "mouth capsule," and require patience and strong magnification in order to make them out.

Dr. O'Carroll read notes on a case of "Suffocative Hydrothorax, in which the Pleuræ were tapped several hundred times" (see page 355, *ante*).

Specimen after Talma-Morrison Operation.

Dr. Moorhead exhibited a specimen of above. The patient, a girl, aged twenty-two, was admitted to hospital in April last suffering from ascites, which had developed in a couple of days. After tapping, an operation was decided upon. The liver was found to be enlarged, firm, and hard. The surface was scraped, and the great omentum was stitched to the abdominal wall. After the operation the patient was tapped at intervals of ten days—200 ounces of ordinary ascitic fluid being got. About two months ago she began to lose weight. It was decided to see what could be done to establish a permanent drain to the peritoneum, but no improvement took place, and the patient afterwards died. The interest of the specimen was in showing the results of a Talma-Morrison operation six months after its performance. On making the autopsy he found adhesions across the anterior abdominal wall, and along these could be seen the development of new veins, chiefly between the two peritoneal surfaces. There was no engorgement of the deeper vessels. The ones that had increased in size or number were the superficial ones. So far as concerned what they had hoped to do, the operation was successful—*i.e.*, new collateral channels had been established. That it was not more so was probably due to the fact that the patient, in addition to cirrhosis, had a nutmeg liver. At the *post-mortem* they found no valvular lesions to account for their first idea that the heart might be partly the cause of the ascites, but the right ventricle was intensely fattily degenerated. In most cases of cirrhosis some alcoholic history could be obtained. This patient, however, had been a teetotaller all her life, but on inquiry he found that part of her occupation was the putting of photographer's negatives into methylated spirits, which might have had something to say to the case.

Mr. Wheeler instanced a case in which, after finding an enlarged liver roughened on the surface, he performed a Talma-

Digitized by Google

Morrison operation. That was two years ago. The patient was tapped once after the operation, but never since. He has been extremely well, and has gained three or four stones in weight. The other day he came to show himself; no tapping was required, but on examination the urine showed a good deal of albumen, giving signs of a cirrhosis of the kidneys. Ninety per cent. of cases in which there were no complications had been cured of ascites by the Talma-Morrison operation.

Dr. Earl said he had been struck with the fact that an alcoholic history was out of the question in many cases of cirrhosis—such as cirrhosis occurring in children. A great number of the patients met with in hospital practice drank all they could get, and if there was any intimate connection between alcoholic indulgence and cirrhosis of the liver it should be one of the commonest affections, which it was not by any means.

The Chairman thought it hardly possible to be sure of the histological condition of the liver through such an incision as is made in most laparotomies. Outside inspection of the liver did not show the condition of the inside or of the capsule. He was, therefore, somewhat sceptical when he heard the liver accurately described on the basis of an incision for a Talma-Morrison operation, and he was not sure that the evidence did not indicate that the ascites would have disappeared eventually without any operation.

Traumatic Rupture of Heart.

Mr. Wheeler showed a ruptured heart. The case was that of a young actor, who was killed by a motor car in August. The heart was absolutely torn in two.

Friday, February 15, 1907.

The President in the Chair.

Urinary Tuberculosis.

Dr. L. G. Gunn exhibited a specimen taken from a man of about forty-five years of age, who had been admitted to hospital with the usual symptoms of urinary tuberculosis. As far as they could diagnosticate, he had a large right kidney, from which it was thought the pus in the urine was probably proceeding. The

Digitized by Google

bladder was small, contracted, and tubercular. A cryoscopic examination led to the conclusion that the patient was on the borderland of insufficiency, and the right kidney was thought to be a bag of tuberculous pus. On operating, a large kidney was found having a great deal of apparently healthy tissue in it. On exploring the pelvis of the kidney tuberculosis was found present. He presumed he had been wrong in thinking the other kidney healthy; he therefore did not take the kidney out. The patient died two days afterwards, and the *post-mortem* showed that the cause of death was extensive miliary tuberculosis affecting the liver, lungs and spleen. The other kidney was a tiny structure, apparently congenitally small, but perfectly healthy, though incapable of sustaining life. The primary tuberculous focus was a small chronic abscess in the prostate.

THE PRESIDENT said the fundamental interest in the case was the difficulty of making out whether one or other or both kidneys were involved. For many years attempts had been made to settle the matter. An observer had stated that the mere palpation of a healthy kidney was sufficient to produce some degree of albuminuria; a larger amount was produced if the kidney had been damaged previously; but if it were an utterly insufficient thing like a tuberculous mass it did not produce any. If that were established, it might give them a further and pretty commonplace test as to which of the two kidneys was involved.

PROFESSOR MCWEENEY said the large kidney was a beautiful specimen of compensatory hypertrophy; the other was the smallest he had ever seen which bore no evidence of organic disease.

(1) *Liver with Cirrhosis and Carcinoma;* (2) *A Case of Lymphatism.*

DR. A. R. PARSONS showed specimens of above. The first was the liver of a woman, forty-two years of age, who had been admitted to hospital in November last complaining of considerable swelling of the abdomen and also of the legs. The swelling of the abdomen, which had commenced three months previously, had not interfered with her until some six weeks before admission. Her previous history threw practically no light on the nature of the swelling, excepting in the one point that had a slight bearing on it—viz., that five years previously she had had a slight attack of hæmorrhoids. She was the mother of twelve children, of whom

Digitized by Google

six had died in infancy. She was rather a sallow woman, but not jaundiced. Opinion differed on the *ante-mortem* diagnosis as to whether the condition was malignant; he held the view that it was cirrhosis, basing his opinion on the facts that the patient gave an ill-defined history of alcoholism; the liver was uniformly enlarged; the spleen was considerably enlarged; there was a history of hæmorrhoids; and the fluid obtained on tapping was clear and non-sanguineous. On the other hand, the rapid emaciation and short history of the case were supposed to suggest malignant disease. No primary focus could be palpated in any part of the abdomen. She vomited, but no hydrochloric acid was present. There was no symptom to suggest primary disease of the stomach. On opening the abdomen after death they found the liver considerably enlarged, and it was perfectly manifest she had malignant disease of the liver. It was equally certain she had advanced cirrhosis of the liver, usually attributed to alcoholism. A careful examination was made of the stomach, pancreas, intestines, uterus and ovaries; there was no evidence whatever of primary malignant growth in these organs, and the naked eye appearance of the liver and the microscopic sections showed that the growth was primary in the liver. There were secondary nodules in the lung. The case represented an unusual combination of primary malignant disease and advanced cirrhosis of the liver.

Dr. A. R. Parsons, in presenting his second specimen, said that in 1892 he had met with several cases of sudden death in children from one to five years of age, in which the only abnormal *post-mortem* appearance was great enlargement of the adenoid tissue of the intestines. Dr. Peacocke had described two or three cases which were identical with his own cases, and referred to a valuable paper by Dr. Ewing, of New York, who, following Paltauf, called the condition lymphatism. The cases were characterised by sudden death, frequently—but not always—preceded by convulsions; and the *post-mortem* revealed nothing sufficient to account for death. In the cases which he (Dr. Parsons) had met he noted considerable enlargement of the solitary follicles and Peyer's patches; considerable enlargement of the mesenteric glands; the spleen was slightly enlarged, and a section of it showed some enlargement of the Malpighian bodies.

Digitized by Google

Dr. Peacocke observed in his cases extreme enlargement of the thymus gland. Since Dr. Peacocke observed his cases no others had been reported in Dublin, and there was little information available in English literature. It was not until recently that he had had an opportunity of seeing another case of lymphatism. This was a child of seven months. He was perfectly well until one Saturday; he was brought to hospital next day (Sunday) at 12 30, and died at two o'clock. Simultaneously he (Dr. Parsons) had a child in hospital who died from pneumonia. He was the same age as the other child. The viscera of both children formed a striking contrast. In the one the thymus gland was in its presumably normal condition; in the other there was an enormous enlargement covering quite a large part of the heart. It was, he thought, quite possible that a large number of cases succumbed to the condition of lymphatism, and not to convulsions.

Dr. Pringle and Dr. Farnan cited similar cases.

Dr. Peacocke said that when he was observing his cases he was anxious to get comparisons similar to what Dr. Parsons had got, as he felt that exaggeration was possible. He had never found any enlargement of the external lymphatic glands. He had, however, found a slight patch of congestion at the base of one or both lungs, although there was no evidence of there being anything wrong before, except a slight cold. He was sure a great many cases occurred which were ascribed to convulsions, which, however, was only a symptom of disease—not a disease itself.

Dr. McWeeney recalled a case similar to Dr. Parsons' first exhibit. As regards the subject of lymphatism, he did not think they had good scientific proof that death was due to the lymphatic condition.

Dr. Parsons, in replying, admitted they were not able to trace the connection between the lymphatism and sudden death, but the fact remained that the condition was found present in the cases of sudden death which he had cited, and as cases accumulated there would be fair reason to believe that there was some connection.

Organisms from Cerebro-Spinal Meningitis.

The Secretary (Professor White) exhibited specimens of organisms obtained from cases of cerebro-spinal meningitis. From the first case reported he had, he said, made direct cultivations from spinal fluid obtained aseptically by lumbar puncture

Digitized by Google

in broth, human blood serum, glycerine agar and litmus milk. The broth next day was barely clouded; tiny discrete grey colonies developed on the serum; the glycerine agar remained sterile. Subsequent examination showed these growths to be pure cultures of a diplococcus, sometimes seen in tetrad form, staining irregularly with simple stains like Löffler's blue, and negative to Gram's stain. Microscopic examination of the cerebro-spinal fluid showed very many pus corpuscles and numerous organisms seen mainly as diplococci, but there were many tetrads and a few short chains. A considerable number of these organisms were inside the pus cells. Some of them appeared to have capsules, and like those in the cultures all were decolorised by Gram's method. He inoculated further cultures from the originals, and continued the inoculation to the fifth generation, which was still alive. The fourth and fifth had grown very well on ordinary agar, although the original inoculation on the glycerine agar was without result. He had done animal inoculations with negative results. The same organism in pure culture was obtained from later cases of the disease, but a smaller number of pus cells and fewer organisms were present, although the cases were more severe clinically. The diplococcus now exhibited had many of the characters of the organism described by Weichselbaum under the name, *Diplococcus intracellularis meningitidis*, but apparently differed from it in having a capsule and in forming short chains. He was not quite satisfied that the organism was a distinct entity, but inclined rather to the opinion that it was a modified *Pneumococcus*. That, however, was difficult to prove. In a previous outbreak he got only the pneumococci from a great many cases, and during that outbreak in only one case did he get an organism which, like those now exhibited, might be classed with Weichselbaum's.

Dr. Day gave the clinical history of four cases, the curious thing about them all being, he said, that they were perfectly clear in their intellect.

Professor McWeeney had observed two meningitis cases within the last few days from the Children's Hospital, Temple Street. A *post-mortem* was obtained in the first case, and revealed the tubercular form, limited to the cerebral pio-arachnoid. From this, numerous T. B. were obtained in smear preparations. A

Digitized by Google

curious fact was that whilst engaged in searching through preparations of the membranes of the cord, he came across a single polynuclear leucocyte, containing a few typical "biscuit-shaped" diplococci. Was it a case of mixed infection? In the second case, which was regarded by Dr. D. Farnan as typical cerebro-spinal fever, there was no autopsy, but he had examined about 5 cc. of fluid obtained from the child (aged three) by lumbar puncture. The microscopic result was negative, but he had succeeded in growing from it, as the only organism present, a Gram-staining diplococcus tending to form tetrads, and growing well in the form of small whitish colonies on ordinary agar, serum-agar and blood-agar. He felt sure this could not be the organism described by Weichselbaum and found by Professor White. The speaker concluded by referring to the probability that the organism obtained access *viâ* the posterior fossæ of the nose, to its propagation by contacts, to its low resisting power, and to the small numbers in which it occurred even in severe cases. He could only suppose that it must be highly toxic, though of this there was no experimental evidence.

Dr. Farnan read the clinical history of the cases mentioned by Dr. McWeeney from notes by the House Surgeons.

Friday, March 15, 1907.

Dr. W. R. Dawson in the Chair.

Abscess of Cerebellum.

Dr. W. Boxwell exhibited an abscess, in right lobe of cerebellum, taken from a boy, fourteen years of age, who, his mother said, had always been an idiot. About Christmas he was struck with a snowball behind the ear, where a lump subsequently arose. For a few days he had a discharge. He was brought into hospital on January 8th suffering from attacks of vomiting, and in a curious drowsy state. The large lump behind the ear was diagnosticated as hæmatoma. He was then in a hectic condition; he vomited everything given to him, and also at intervals irrespective of food. An operation was performed on January 12th, with a view to find the condition of the lump and to ascertain if there were any disease in the antrum and sinuses. The lump was found to be a suppurating hæmatoma; and, with a view to

Digitized by Google

clearing out possible mischief in the mastoid cells, they were trephined, but no particular sign of disease was found. On further exploration a suppurating track was found leading down through the occipital bone, from which pus was slowly oozing. This was found to lead under the base of the skull, and a large suppurating sinus was found. The track was drained, but no relief of the symptoms followed. The boy became more and more drowsy, and was again operated on the 25th, the skull being trephined and the brain explored for abscess. None could be found. Five days afterwards the boy died. At the *post-mortem* there was found on the right side a large cerebellar abscess, which had opened of itself on the under surface, and a pool of pus was lying in the occipital fossa. On exploring the original suppurating sinus with an ordinary bent probe, it passed easily into the cavity, and the cavity had been slowly emptying itself through the sinus and the drain. Examination of the pus showed the presence of ordinary pus cocci.

THE CHAIRMAN asked if Dr. Boxwell considered there was any causal connection between the suppurating hæmatoma and the abscess, or whether the hæmatoma was altogether a different lesion which became infected by the sinus burrowing into it. It struck him that, for an idiot's brain, it was extremely well-formed and convoluted, and he would like to know if anything had been ascertained as to the boy's degree of mental weakness.

DR. BOXWELL, in reply, said the idea was that it was a direct infection from the bone. There was no sign of any mischief through the ear-duct, and there was no disease whatever in the antrum. Whether the hæmatoma became infected secondarily from the pus escaping through the hole in the bone, or *vice versâ*, he did not know. The pus in the cavity was recent. The boy could give no history of himself. His mother said he had always been an idiot, and could not be trusted with a message.

(*a*) *Sarcoma of Femur*; (*b*) *Tubercular Knee-Joint.*

MR. L. G. GUNN exhibited specimens of the above. He did so, he said, because both were diagnosticated to be the same condition. Both presented symptoms of chronic inflammation of the knee-joint, which was believed to be tuberculous. In one case the diagnosis was correct; in the other it was very much mistaken.

Digitized by Google

Sacro-Coccygeal Teratoid Tumour, with Formation of Metastases in the Groin.

MR. SETON PRINGLE read a paper on "A Sacro-Coccygeal Teratoid Tumour, with Formation of Metastases in the Groin" (see page 358, *ante*).

THE SECRETARY (Professor A. H. White) recalled a case of a tumour in the same region which supported the view that such tumours were parasitic. It was from a girl of sixteen or seventeen. A tumour which had been small suddenly took on rapid growth, and contained portions that were typically cancerous, and others that were typically like round-celled sarcoma, besides almost every fully formed tissue that could possibly be found. In the case shown by Dr. Pringle the structure of the tumour was much less complex.

Cerebro-Spinal Meningitis.

DR. HARVEY exhibited slides from a case of cerebro-spinal meningitis—a girl aged ten. She had been perfectly well on the morning of the previous Monday. While swallowing a piece of liver she choked, and, not getting much relief, she was brought to hospital. There she developed great tenderness down the spine. She passed into a comatose condition; her eyes were open, but there was no corneal reflex. She died the same night. Next morning he drew off some fluid by lumbar puncture. The slides which he had prepared show a diplococcus in great numbers, even in the original fluid, and outside the cell. They were distinctly non-Gram staining. One of the slides showed a capsule round the cocci, which was said not to exist.

PROFESSOR WHITE observed that the cocci shown were all stained much in the same way. In those which he himself had got the irregularity of the staining was most pronounced, some taking it deeply, others only slightly. The regularity in Dr. Harvey's specimens was probably due to the early stage at which the patient had died. With regard to the cocci which exhibited capsules, he had found the same in some of the organisms which he had got from certain cases this year. Weichselbaum and his school denied absolutely the existence of a round capsule in his coccus; but Jäger, who had considerable experience, stated that capsules were frequently seen. Between the supporters of the two there

Digitized by Google

was considerable strife, both on that point and also as to whether the organisms were always negative to Gram. The former school say that those which were positive to Gram were not the specific organism at all. He mentioned the fact that sub-cultures of an apparently pure non-Gram-staining organism became Gram-staining as showing that the question of staining was not yet settled.

DR. DAY asked if there was any history of discharge from the nose in the case. He had found it in all cases except one, and Continental observers had reported a diplococcus found in swabs taken from fifty per cent. of cases.

MR. GUNN said he had seen the child in hospital, and no history of discharge could be obtained. He was inclined to think she had been ill for a longer period than the parents made out, and that the choking was probably some defect of swallowing. About an hour and a half before death there were five or six fairly typical spots on the child's limbs. After death he saw the body almost covered with them.

DR. HARVEY, in reply, said the preparation to which Professor White had referred as showing regularity in staining had been made from the original fluid; but on making some more that day he had noticed great irregularity in the staining; and the appearance of diplococci apparently much larger than the other cocci gave him the idea that the cocci had swollen out.

Friday, May 3, 1907.

DR. ARTHUR H. BENSON in the Chair.

The Pathological Report of the Rotunda Hospital for the Year ending October 31, 1906.

DR. ROWLETTE read the above report (see page 309, *ante*).

Epidemic Cerebro-Spinal Meningitis.

PROFESSOR E. J. MCWEENEY read a paper on the above (see page 367, *ante*).

Vaccine Inoculations and the Opsonic Index.

PROFESSOR WHITE made a communication on above (see page 379, *ante*).

Digitized by Google

SECTION OF STATE MEDICINE.

THE POOR LAW MEDICAL SERVICE IN IRELAND.

By THOMAS DONNELLY, M.D. Univ. Dub., F.R.C.S.

[Read in the Section of State Medicine, February 8, 1907.]

I have to thank the Council of the State Medicine Section of the Academy for inviting me to read a paper this evening. In selecting the subject they were no doubt influenced by the fact that sixteen years ago I read a paper here on "The Grievances of the Poor Law Medical Officers in Ireland," and that I have had the unusual, if not unique, experience of having been a country dispensary medical officer and afterwards a medical officer in the city, besides having been attached to a large general hospital for several years. I am also fortunate in this, that I am and have been for many years in close touch with the poor law medical officers all over Ireland, whose interests I have always done my utmost to promote.

To the poor law system in Ireland a renewed interest has been given by the recently-published report of the Viceregal Commission. It is quite remarkable the unanimity with which this report has been praised—a compliment which rarely falls to the lot of such documents; and I select that part of it for discussion which deals with the State Medical Service for Ireland, simply because it is the only part which is to any extent open to criticism.

The Poor Law Medical Service forms so large a part and is so important a factor in the medical life of Ireland that anything which affects it affects the entire medical profession

Digitized by Google

in Ireland. It is not too much to say that only through this service can the profession in Ireland ever hope to take a full and active part in the national life of the country; only through it may we hope to secure for the profession a place in the social and political world commensurate with its public utility. I therefore offer no apology for limiting this discussion to points which may not appear, at present, to have any direct personal interest to some of you.

I approach the matter, not as an idealist, to expatiate on the relations which should exist between the State and its sick poor, and hence to those relations which would naturally arise between the State and the band of devoted men employed to carry out the beneficent designs of the said State. I approach it not as a scientific man to lay before you the reasons why, in an age of such rapid advance in medical science, a State Medical Service should be productive of the best results both to the profession and the people. I approach it as a practical man, having due regard to the conditions and circumstances which envelope it and from which it cannot be divorced. I must not, therefore, even in deference to the custom which obtains here, altogether disregard those political considerations in which nearly everything in this country is immersed. Such considerations, however, in a gathering like this should be treated in as impartial and judicial a spirit as possible, remembering that we are in the first place medical men, in the second place Irishmen, and only in the third and last place the adherents of any particular political party. We are bound, therefore, to consider the effect such a change would have upon the sick poor before we allow ourselves to take into account its possible effect upon our pet political persuasions. Our profession, if none other, should be able to rise to this height.

I must ask you kindly to bear in mind that any views I here express are my own personal ones, and that I do not

Digitized by Google

speak for any organisation or body with which I may be connected.

I start with the incontrovertible proposition that the poor law system cannot remain as it is. No doubt, as some may say, it will be a long time before any of the reforms suggested in the report are put into effect; but, nevertheless, I hold firm to the opinion that once a system is found to be—as this one is—out of joint with the times, that then the period of its extinction is not far distant. I assume, as I believe I am justified in assuming, that should any change be made in the constitution of the present poor law system in Ireland, that the Dispensary Medical Service as well as the Workhouse and County Infirmary Services must of necessity be included in the re-adjustment. It would not be possible to re-arrange the management of the sick poor to any advantage without at the same time altering to a certain extent the construction of the different medical staffs that attend upon them. I would deprecate, however, most strongly, any attempt to amalgamate the Coast Guards, Police, Irish Lights, &c., Services with the Poor Law Medical Service. These services are perfectly distinct and separate, and have a character and objective quite different from the Poor Law Service. They should in no way be mixed up, though, of course, there is nothing to prevent the same man holding the several appointments at the same time in districts where his duties to the sick poor would not engross all his time. As for the Postal Medical Service, it is scarcely worthy of the name at all, except in so far as service is synonymous with serfdom, and, until such time as the Post Office authorities see fit to offer terms which an honourable man may accept, should be studiously, if politely, tabooed by all self-respecting members of the profession, at least in rural districts. With these preliminary remarks I now plunge *in medias res*.

The first attempt made to deal with the sickness and misery,

Digitized by Google

begotten of their extreme poverty, which prevailed among the Irish people was made by our own Irish Parliament in 1765, when an Act was passed permitting the establishment in each county of a county infirmary, and assigning a certain sum for its maintenance, out of which £100 per annum was (together with other benefits) to be allowed to the surgeon in charge. Though excellent in many respects, and not in the least offensive either to the people or the profession, as were many subsequent enactments for a similar purpose, the establishment of these county infirmaries did not altogether meet the requirements of the case. The infirmaries were used by a somewhat better class of people than the very poor and destitute, and the surgeon securing, as a matter of course, the patronage of the magnates of the district, whose dependents he treated in the hospital, could not be regarded in any sense as the doctor of the poor.

The next step in the direction of giving medical aid to the Irish sick poor was the inauguration, after the Union, in 1838, of the detested poor law system, which, as the Viceregal Report demonstrates, was disliked and opposed by all classes and every section in Ireland at the time, and which certainly, we all admit, has not justified its existence or its cost since. Notwithstanding that the workhouses then established gradually extended their scope, soon included regular hospitals, would seem to have brought medical and surgical relief within the reach of the very poor, yet it is a fact that at this date very little, if any, medical aid was available in the remote rural parts of Ireland. To meet this difficulty the Medical Charities Act was passed in 1851, by which Ireland was divided into "dispensary districts," and a medical officer put in charge of each. Excellent as it was in theory this system was worked out badly in practice, and little or no consideration given to details. The dispensary districts were mapped out anyhow, without regard to configuration or area.

Digitized by Google

A doctor was dumped down there, with or without a residence as the case might chance to be. He was expected to see and prescribe for those who presented black tickets at the dispensary depôts located here and there through the district, and to visit those who sent for him on red tickets, but no means of conveyance whatever was provided for him, though in many instances the distances to be traversed were of extreme length and difficulty; nor was he allowed any power of discrimination between those who were really "poor persons" under the Act and those who could afford to pay some trifling sum to supplement the miserable stipend attached to the office. The Act of 1851 also required him to act as Public Vaccinator, Registrar of Births, Deaths and Marriages, Sanitary Officer, Certifier of Lunatics, &c., &c., all without any fee.

The dispensary doctor was, in short, the *Pooh-bah* of his district without, however, those comfortable emoluments which enabled the gentleman of Gilbertian fame to accept with resignation his multifarious duties. With respect to the latter points just mentioned, matters have been somewhat improved by subsequent legislation, and now small fees are given for registration, &c., but the whole system leaves much to be desired, and shows clear traces of having been conceived and carried out in a haphazard and unworthy fashion.

The position of affairs in this year of grace 1907 is this: After attempts at legislation dating from the thirties, the State has, through its Commission, condemned the present mode of administering relief to the poor in Ireland, and suggests the formation of a State Medical Service on an entirely new basis. Reasons are put forward which appear sound. The representatives of the people, on the other hand, without waiting to argue the matter, at once, and without hesitation, declare themselves opposed to the recommendation of the Commission on this point, and this in spite of the

Digitized by Google

financial advantage therein foreshadowed. They do not want a State Medical Service. The medical profession, whose interest in the matter is at least equal, may be said to be fairly divided in opinion. They are, and have been for many years, extremely discontented with the conditions prevailing in the service with respect to pay, pension, promotion and position. Some of them think that these grievances would best be rectified by the formation of a State Medical Service on the lines of the Army Medical Department; others hold with equal firmness that the best means of securing the necessary reforms is to keep agitating till the people and their representatives become educated as to what is requisite to make the present system more perfect and efficient. The Irish Medical Association, the mouthpiece of the profession in Ireland, having taken up the cause of the poor law medical officers some years ago, acting in the belief that redress would come through the local bodies, passed a resolution opposing the establishment of a State Service. Last year, however, having been unremitting meanwhile in its efforts to obtain a sufficient measure of amelioration from the local authorities, and being somewhat discouraged at the net result of those efforts, the Irish Medical Association passed a resolution advocating the adoption, in the main, of the suggestions contained in the report of the Commission. Now, it naturally occurs to anyone interested in the subject to ask: Whence comes this great divergence of opinion?

Why is a scheme proposed by the State after due deliberation, and presumably for the benefit of all, immediately received with suspicion and rejected by those chiefly concerned?

Why does the medical profession divide on this important point, as if to emphasise the existence of two opposing camps?

Well, to answer these questions thoroughly would lead me into those political considerations which it is my desire to

Digitized by Google

avoid. Suffice it to say, that the presence amongst us of this antagonism is a fact, and that the majority of the governed in this country view with instinctive distrust any action or proposition of their governors, however plausible. Sad as it is that it should be so, when we consider that this very poor law system which the Commission takes occasion to condemn was, as is admitted, imposed on the people against the wish of all classes, a very natural explanation of the reluctance to receive fresh legislation may be arrived at. I hasten to leave this unpleasant subject, which I allude to chiefly to point out that the position taken up by members of our profession should not be the ardent advocacy of any particular side or scheme, but an earnest and impartial endeavour to find and obtain a just, efficient, and workable scheme of medical aid to the sick poor, acceptable to both parties, to substitute for that which, always disliked and condemned, is now about to be abandoned. The weight of our influence should go towards allaying strife and smoothing away animosities between those parties, the State and the people, upon both of whom we are dependent.

In pursuance of this idea I would suggest that the medical profession should try to bring about some compromise between the present arrangement and the proposed one—admitting on the one hand that the State must have, in lieu of finances supplied, a voice in the disposal of the money—in the fixing of the standard, in the arranging of the work, and that popular representatives should have, on the other hand, the final election of the man who is to be the people's doctor and live amongst them, and have, at least, as much control over his actions as they have at present. It is to be regretted that men of a liberal profession like medicine should be obliged to approach this subject in such a spirit, for there can be no doubt that in a constitutionally governed country it would be their pleasurable duty to engage in the task of planning an

Digitized by Google

ideal system, by which medical relief of the best kind could be brought within reach of all, without either degrading the doctor or demoralising the people; and this they could do without taking into consideration any other circumstances than those immediately connected with the subject. However, professing, as I do, to be a practical man, I must take things as I find them, not as they should be. It seems clear that the present system of administrating medical aid is doomed, notwithstanding the brave efforts of many local boards to better in some ways the position of the men in their service. It is felt that at best these efforts but prolong a little longer a state of things undesirable from the point of view of the poor, the paymasters, and the physicians. A system which is so faulty in principle, construction and administration as this one is cannot be much or permanently improved by small tinkering, such as giving a few men some slight increase of salary, with an annual holiday thrown in. On the other hand, it is highly improbable that the State will ever again be able to force a reluctant people to accept a system repugnant to them, and in which they would have no voice, no control. To find a way out from this *impasse* (and if it is honestly and sincerely desired that an improved method of administering medical aid be introduced within a reasonable time) something in the nature of a compromise—some alternative scheme—must be accepted by all parties concerned, and it seems clear to me that the proper attitude for individual members of the profession to adopt would be a systematic attempt to get something of this kind done during our own time. It really does not matter to us from what quarter improvement comes, so long as it does come, and without delay.

The County Hospital Scheme, with smaller district hospitals affiliated, advocated by the Commissioners, appears to have met with general approval, and in formulating some such

Digitized by Google

alternative scheme as I have mentioned, I will take this as a basis. I assume the abolition of workhouses as such, and their conversion to other specific purposes. I take it that no time or money would be expended in opposing the establishment of these county hospitals, especially if buildings already in existence were used, and I also assume that the necessity for having district hospitals would be readily admitted. By no other means would the poor in outlying districts be so effectively reached and treated. I do not know what the commissioners meant by "district hospitals." To my mind the residence of each dispensary doctor would need to be one. Having established the county hospital in the most central town of the county it would then be advisable to map out afresh the dispensary districts, many of which are at present unnecessarily inconvenient, both in size and shape. This would not mean the undue multiplication of districts; quite the reverse. In the centre of each district the dispensary doctor's residence should be placed, and would, of course, belong to the office, and be free of rent, and attached thereto all that would be necessary to constitute an emergency hospital. There would be, say, four rooms arranged as wards, a pharmacy, with all drugs and apparatus suitable for urgent cases, as well as the ordinary ailments, which two classes of case would be, it is contemplated, alone treated there. Attached also should be a residence for a district nurse, who should have a midwifery diploma. As the districts would be more conveniently arranged, fewer outlying dispensary depôts would be necessary, but wherever required they should be established and attended by the medical officer. By these means, and also by the establishment of a complete and extensive system of telephonic communication, which will, no doubt, take place in the near future, the doctor would be quite in touch, and capable of dealing with any case that might arise, and the poor could feel that they were within reasonable

Digitized by Google

reach of medical assistance. The county hospitals should have at least two resident medical officers, and also an out-patient department. This would obviate the necessity for having dispensaries in the immediate neighbourhood of the hospitals, for there is no reason why the hospital medical officers should not visit at the houses of the sick poor within a certain distance of the hospital. The county hospital surgeons would be, in fact, the dispensary doctors for the area around the hospital. It would be desirable to have one of the medical officers an operating surgeon, one a physician, and in places where there were three residents, one a gynæcologist. There should be no difference in rank or remuneration between the county hospital medical officers and the dispensary or district hospital medical officers, except those which fortuitous circumstances might give rise to; but lest these should amount in practice to something considerable, it should be the rule that positions falling vacant should be filled from the ranks of the service before new appointments be made.

To insure that the dispensary or, as they would be called, district hospital surgeons would have the requisite experience, besides the cases treated in his own small hospital the district hospital surgeon should have the right of assisting at operations and visiting in consultation with the resident all patients from his district in the county hospital.

The above is a sketch of a very simple mechanism, but one which from my experience as a country dispensary doctor could be made a very effective and comprehensive one. The salaries of all the medical officers would be the same, say £200 per annum, rising to £400, together with registration and vaccination fees, &c., and residence free of rent and taxes. All this should be paid by the State. An annual holiday of one month should be granted to each medical officer as a right, free of expense. Every medical officer in the service

Digitized by Google

should be permitted to retire on half-pay after twenty years' service, and should be compelled to resign at sixty-five years of age on two-thirds of his salary and emoluments. This would bring about a healthy circulation in the service, good alike for the poor and the profession, and has been found beneficial in nearly every other service. The grave objection to the Commissioners' Report, and one which would be fatal to its adoption, is the constitution of the council, or board of control which, according to them, would be necessary. I foresee that endless disputes would arise on this point, and that—apart from the objection to having any more boards added to the forty-two already in existence in Ireland—it would be hopeless ever to construct a board that would please everyone. This would tend towards what I most dread—namely, the indefinite postponement of the settlement of this vital question. Let us see if we could not dispense with another board altogether. Let the State, or the Local Government Board, have inspectors, as at present, increased in number, if necessary, to make sure that the system is properly carried out, to prevent abuses creeping in, and to hold inquiries when called for. Let the management of each county hospital and its affiliated district or dispensary hospitals be in the hands of a large and representative committee. This committee of management might be elected at their first meeting by the county council, and could be made up—say one councillor from each district, the county medical officer of health (of whom more anon), one representative of the Government, and two clergymen—one from each of the two prevailing denominations of the place. Of course I only throw out this suggestion for discussion. In the hands of this committee would rest the election to all medical posts in the county, though, of course, subjected to the formal sanction of the Local Government Board. In order to guarantee a high level of efficiency, which is really all that the State should require,

Digitized by Google

let only those who, being fully qualified in medicine, surgery, and midwifery, and registered, have, in addition, an extra certificate in the practice of obstetrics, a certificate in lunacy, and at least twelve months' experience (not necessarily continuous) as *locum tenens* in dispensary districts, or in lieu thereof one year's experience in a large hospital, be eligible for appointment in this service, and none others. By this method not alone would good men be procured, but only those who have served, so to speak, an apprenticeship would be admitted into the service. This I consider of paramount importance. If desired, a post-graduate course might be made a condition of promotion or increase of salary, so as to maintain a high level of proficiency. There can be little doubt that the people would not object to a State service on these lines. The State meaning in this connection that the funds necessary are provided by general not local taxation.

I would suggest, both on the score of equity and expediency, that the county and district hospital medical officers—all of whom on my plan would have dispensary duties to perform—should (in addition to the fixed salary and emoluments paid by the State for the definite work of treating the sick poor in the hospitals and dispensaries) be paid by the local authorities a small fee on each red ticket or case visited at the patient's home. I do so for the following reasons :—It is but fair that a man should be paid in proportion for extra work done. At present if a disease becomes epidemic the medical officer is put to great expense for extra car-hire. He is bound to attend dispensary patients first, and if these are numerous, most of his time is used up, to the great detriment of his private practice. Again, the better a man does his work, and the more confidence, consequently, the poor people have in him, the more calls he gets—all without further remuneration, or even recognition. It would be a check on the improper issue of tickets, and a guarantee that only those

Digitized by Google

entitled to it would receive medical relief, as is the case at present with regard to outdoor relief.

It would also induce the county councillors to take a direct interest in the proper distribution of medical aid to the sick poor, and would be an index to the efficiency of the work performed. It would assuredly prevent the degrading effect of the present system on the minds of the poor people, and they would value more highly medical assistance they knew would be directly paid for. It would enable the medical officer to obtain payment from those well able to pay, who now receive medical advice at his expense.

This plan, while just, is no more liable to abuse than the present method of administering outdoor relief, and could be safe-guarded in a similar manner. I mentioned just now a county medical officer of health. As we are all aware, the Public Health Department in this country is a farce, and certainly stands in need of extensive reformation. In the first place, dispensary and hospital medical officers should neither be asked nor allowed to do public health work. When it is fully realised what the work of a medical officer of health should be, it will be seen that it would be quite incompatible with his duties as a dispensary or general practitioner, which necessarily bring him into private and confidential relations with his patients. No man living by the practice of medicine, and having a *clientèle* with whom he must be on good terms, could possibly do public health work efficiently or thoroughly. Men who enter the ideal public health service, which we may hope to see established some day, will be expected to devote their whole time to this class of work, and will be paid salaries sufficient to render them independent of any other source of income. Special qualifications, such as a D.P.H., are necessary, and will be, no doubt, required of them; but then their reports will be received with the respect due to them, and executive power will, of course, be granted to them. Each

Digitized by Google

county should have at least one medical officer of health, and he should be responsible to the State, and do nothing else but direct and see that the various works and regulations for the maintenance and improvement of the public health are satisfactorily carried out. This medical officer of health should have as many sub-sanitary officers under him as would be necessary, and he would be a suitable person to have on public boards and committees, his opinion on medical matters being a valuable one, while his position would be an independent one. Detailed reference to the public health service is, however, at present outside my scope, and I merely allude to it here to show that I am very much opposed to having the duties of attending to the sick and doing sanitary work combined and performed by the same person.

As I have already detained you too long, I shall only briefly numerate the points to be emphasised. That the poor laws system must soon undergo extensive alterations appears certain. In this transformation let us medical men bend our energies to secure that the medical part of the reform shall at least be satisfactory. Bearing in mind that our influence in Parliament is small, while our influence with the people may be considerable, let us do nothing that would arouse ill-feeling, but endeavour by the exercise of sound judgment and a wise policy of conciliation to bring about a settlement of this important matter on lines satisfactory to the people and profession, and which, if not acceptable to, at least cannot well be rejected when formulated by the State. The sketch I have given of a mode of administering medical aid to the sick poor, however imperfect it may be, has the following points to recommend it :—

With regard to the poor, it is simple, thorough, and humane. It gives them a competent doctor with up-to-date equipment within easy access.

From the point of view of the State it is a scheme which,

Digitized by Google

while it will not cost more than the system outlined in the report, is free from many objections that can be urged against the latter. It does away with the board, the formation of which is sure to be strenuously opposed, while it retains the good that the board was supposed to effect—namely, the ensuring a high standard of qualification and experience in the service.

From the point of view of the profession it is good, not so much that it secures to men in the service a fair salary and a pension, &c.—for this they are bound to obtain under any scheme of remodelling—but that it gives them the status they should occupy. The present arrangement of miserable salaries, equally wretched to competents and non-competents, of labour to an unlimited age and no right to a pension, are all so retrograde, so incompatible with either the efficiency or contentment that such an important public service should possess, that they are bound to disappear under any process of reconstruction. Now, to my mind, what should most commend the scheme here outlined to the profession is the possibility it opens up to a man of doing his work effectively, and securing for himself in so doing not alone reasonable remuneration but credit, and the probability that such a scheme as this would not present those insuperable obstacles to a speedy settlement which the scheme favoured by the report appears to do. It is, in fact, a scheme based upon that of the report with the contentious points eliminated.

The excellent idea in the report of county and district hospitals is retained and somewhat extended, while by putting all men in the county on the same level, paying the same salaries, and giving the same kind of work to do, more or less, all grounds of jealousy are removed, and should such extraneous circumstances, as greater facilities for private practice, &c., give to any particular post superior value or attractiveness, then, by recognising the claims of men in the service to pro-

Digitized by Google

motion, and leaving the election in the hands of the local authorities, all sources of discord would be removed and free play be given to that personal element which enters into all relations between patient and doctor in this country which should not be disregarded, but of which the cut and dry mode of selection suggested in the Commissioners' Report takes no account.

Finally, I would point out to you that this scheme harmonises best with all the other reforms in the poor law system suggested in the report, and to which, so far as I know, no exception has been taken, and consequently should receive mature consideration.

Thanking you for the courtesy which prompted the invitation to me to express my views here, and for the patience with which you have listened to them, I now bring to a close these remarks, which have but one merit—namely, that they will, I trust, serve to elicit other and more valuable opinions than mine; that they will stimulate those who may not yet have given to this important subject the thought and consideration it deserves, and help to keep it within the region of practical politics.

Digitized by Google

REMARKS ON THE POLICY WITH REGARD TO TUBERCULOSIS, OUTLINED IN THE REPORT OF THE VICEREGAL POOR-LAW COMMISSION.

By E. J. McWEENEY, M.A., M.D. R.U.I., D.P.H., F.R.C.P.I.

[Read in the Section of State Medicine, February 8, 1907.]

WERE my audience what is known as a "popular" one my task to-night would be simple indeed. But such is not the case. I am addressing an assemblage of experts who are familiar with the reasons that have guided the Commissioners in framing their recommendations regarding tuberculosis, and there is accordingly no need for explanation or defence. There is left to me either criticism or what I may term "completion." For the former there is little occasion. The recommendations of the Commission are moderate, well grounded, and carefully thought out by way of completion I may be permitted to refer to some general aspects of the tuberculosis question and to some of the consequences which the introduction of rate-aided sanatoria would entail.

First of all, I would like to say a word about the prevalence of tuberculosis in Ireland. In par. 102 of the Report the decrease of tuberculosis in England and its increase in Ireland are mentioned. Whilst in no wise desirous of minimising the urgency of the question I think that the use of the word "increase" may be deprecated. The last year for which statistics are available—1905—shows a drop of 2 (per 10,000 living) and the variation during the past forty-one years lies within the narrow

Digitized by Google

limit of 5. The tuberculosis mortality in 1867 was only 1 less than it was in 1905, and that of 1880 was equal to that of 1904—the highest recorded.

What really does seem to be happening is that in the Sister Isle the mortality from this cause is coming down by leaps and bounds, whereas in Ireland no such diminution is perceptible.

As regards the cause of this difference in the behaviour of the disease in two countries, the Commissioners are no doubt right when they say that *on our side* it is due to our not doing anything, whilst on the English side it is due to a number of changes, among which may be cited improved housing of the working class, an increasingly high standard of food and general comfort among them, and the State-regulation of dust-producing industries. Moreover, they have whole-time County Medical Health-Officers who, supported as they are by public opinion, can afford to act independently of individual interests, and can accomplish much more than even the most energetic Dispensary Medical Officer in Ireland, confronted as he is with the risk of losing his popularity or imperilling his very livelihood, in the exercise of the powers with which he is invested. Whilst in no way depreciating the value of the improvements just mentioned, it is only fair to draw attention to the surprising conclusion lately arrived at by that eminent statistician, Dr. Newsholme, of Brighton, and communicated by him to the Epidemiological Society a few months ago. After an elaborate survey of all the facts and figures obtainable, Dr. Newsholme concludes that the really operative factor in the decrease of the tuberculosis mortality in England is—not the several above-mentioned or any cognate improvements, but the *increased institutional segregation* of consumptives. If this be so, then a new and most power-

Digitized by Google

ful argument is furnished for putting into force the Commission's recommendations.

Turning now to the oft-debated question, "Is the Sanatorium worth while?"—a question to which just now it is very important to know the correct answer, in view of the fact that here in Dublin this very week an inquiry is being held by the Local Government Board to determine whether the Local Sanitary Authorities are justified in co-operating in the establishment of a rate-aided sanatorium—I have no hesitation in declaring my belief in the efficiency of these institutions for the real as well as the economic cure of suitable cases. Let me give a few figures. From Dr. Noel Bardswell's interesting little book entitled "The Consumptive Working-Man—What can Sanatoria do for him?" [1] I find that 42 per cent. of all cases recover and keep their full working power for several years after discharge. The figures relating to the consumptive employés of St. James's Gate Brewery, who have been treated at the Newcastle Sanatorium, Co. Wicklow, show that about 41 per cent. are still able to work three or four years after discharge. They are classified into "early" and "advanced," and I am inclined to suppose that a somewhat large proportion of these cases were fairly advanced before entering the sanatorium.

I am under the impression, indeed, that in this country the treatment is not begun early enough to yield the best results. With increased sanatorium accommodation and increased attention on the part of clinicians to diagnose before the bacilli appear in the sputum, I have no doubt whatever that British all-case statistics might be brought up to the highly satisfactory level attained in Germany. As an instance of what is being accomplished there, let me quote the results set forth in my recent Tuberculosis Report to the Local Government Board, as having been

Digitized by Google

achieved at the sanatoria maintained by the Hanse-Towns Workmen's Insurance Society:—

Year	Number treated	Percentage capable of full amount of work at commencement of 1904
1895	56	45.5
1896	146	61.2
1897	208	59.2
1898	251	53.7
1899	306	55.7
1900	296	61.0
1901	215	57.6
1902	175	65.5

These figures refer to both sexes. Those for women are more, for men less, satisfactory—the universal experience.

The recommendations of the Commission, that the converted workhouse sanatoria should receive not only curable but also advanced and infective cases, seems to be an excellent one. There is a most urgent need for isolation hospitals or refuges for advanced cases, whither they may be removed from their small houses or tenement rooms, and kept from infecting their families. This need is no less urgent than that of a curative sanatorium. Now, in a country where people are so much swayed by sentiment as they are in Ireland, a hospital altogether reserved for advanced and hopeless cases would, no matter how named, become a sort of byword in a locality, and the patients, even if willing for the sake of their families to go there, would not be allowed by their relatives to enter such an institution, stamped as it would be with the brand of hopelessness. They might go, no doubt, towards the end, when the burden of looking after them would have become too heavy to bear. But the mischief would then have been done—at any rate to a large extent.

Digitized by Google

Nor do I see any grave drawback to the admission of both classes to the one institution. The most infective cases would probably be in bed, owing to temperature and weakness. It would be easy to keep them separate in an isolated ward. The advanced "ambulatory" cases could be kept at first in the same division till they had become thoroughly "broken in" to the rules for the collection and disinfection of sputum, and the prevention of air-infection from projected sputum-droplets. Their compliance with the regulations once assured I really can see at present no valid reason why they should be kept strictly apart from the curable cases. These latter are actually destroying the bacilli already implanted within them, and might fairly be expected to oppose an obstinate resistance to fresh infection. But with proper observance of the rules there is really no reason why they should run any danger.

There is one class of patient from whom observance of rules cannot be expected—the insane consumptive. Tuberculosis is already very prevalent in our enormous, overcrowded asylums, and must add considerably to the difficulties and anxieties of administration. The Commissioners suggest that all insane consumptives in the advanced stage should—in so far as their mental condition permitted—be removed from the various asylums and segregated in one or more disused workhouse sanatoria that had been specially modified for their accommodation. The recommendation seems an admirable one, and I hope it will be carried into effect. Many of these patients recover, so far as concerns their mental condition, sufficiently to return home, and the experience of cleanliness, sputum disposal and fresh air which they have had in the asylum-sanatorium cannot but cause them to exercise a beneficial influence on their home conditions.

Digitized by Google

The proposal of the Commissioners is that the expense of converting the disused workhouses into sanatoria, and their maintenance as such, be defrayed out of special county-at-large rate. Under the existing law sanitary authorities can form joint hospital boards for the erection of infectious disease hospitals and levy a 1d. in the £ rate to support them. In view of the magnitude of the evil to be grappled with I would suggest that, under the new fiscal arrangements contemplated by the Commission, the limit of 1d. would need to be considerably increased. Is a superior limit necessary at all? The natural tendency of popular bodies towards economy does not need curtailment. If the clause were made to read "not less than 1d. in the £," it would be all the better.

If I do not altogether mis-read the "signs of the times," the rate-aided sanatorium will become a centre of popular endeavour. Among ancillary measures, more or less necessary for the successful working of these sanatoria, may be mentioned—

(1.) The Consumption Dispensary, the objects and institution of which will be found set forth in my Report to the Local Government Board above referred to.

(2.) A local committee for supporting those dependent for their existence on wage-earners who are undergoing treatment in the sanatorium.

(3.) A local committee for the purpose of finding suitable employment for those discharged from the sanatorium. Unless healthy out-of-door occupations can be found for such "cured" or "improved" cases, the "cure" will too often be found to be a misnomer, and the "improvement" evanescent.

The stimulus to the formation of such local Committees, or of a voluntary organisation which would take on all three functions just named, might fittingly be afforded

Digitized by Google

by the only central Governmental body competent to do so—namely, by the Local Government Board, either through its medical inspectors or by lecturers specially appointed for the purpose. This is admittedly a poor country, and financial experts and a Royal Commission have stated that it is over-taxed. Poverty is probably the chief ultimate cause of tuberculosis, which is in reality nature's punishment for bad economic conditions. Could not the Treasury be induced to unloose the national purse-strings and "lend a hand" with money, co-ordination, and expert advice and assistance—the essentials to successful action, and the very things in which purely local action is apt to be lacking?

Whatever be the issue of this Commission—whether its proposals are to be pigeon-holed amid the dust that covers the Reports of so many of its predecessors, and the country is to keep on sinking deeper into the slough of preventable but not prevented disease—or whether the recommendations will be put in force and form the nucleus for successful onslaught on tuberculosis—time alone can tell. Meanwhile, the Commissioners have deserved the gratitude of the country for the bold and statesmanlike attitude they have taken up in regard to this crying evil.

[1] The Scientific Press. London. 1906.

In discussing the two preceding papers,

Dr. Leonard Kidd (Enniskillen) said he considered Dr. Donnelly's suggestion that the resident medical officers should do dispensary duty to be impracticable, because if the hospitals were to be levelled up to a high standard it would be a physical impossibility to have high-class surgical work and dispensary work done at the same time. He thought that each large county should have an independent Medical Officer of Health, to whom the dispensary doctors, if they were also Sub-officers of Health,

Digitized by Google

would report. The present method of reporting to the district councils reduced sanitation in the country to a farce. He thought the name "State Service" unfortunate, and suggested a "Public Health and Sanitary Service." What they ought to have was a Board of Public Health presided over by a minister of Cabinet rank. Although a remnant of the Council of the Irish Medical Association had passed a resolution against the service they knew that the Association was practically unanimous in its favour. The profession was overwhelmingly in favour of some such form of service, and that solely in the interests of the sick poor. The only qualification for admission to hospital should be that of sickness. He was altogether opposed to "lines" and recommendations from subscribers, especially shopkeepers. There should, therefore, be an inquiry officer attached to each hospital. The hospitals should be supported by the county rate, but it would be a pity if the interest of charitable people was killed. Governing bodies might be appointed from members of the County Council and people who lived near the hospitals. Salaries should be fixed to bear some ratio to the work done, and should be proportionately larger in the poor districts where private practice was small. The clerical work in the country should be reduced to a minimum, and there should be some central body to purchase and test all drugs and apparatus, and supply them to the country. He did not consider a single workhouse in Ireland suitable as a sanatorium, from a curative point of view.

Dr. Kenny (Granard) expressed general approval of the report. He did not think the people would have any objection to the profession taking up the control of the State Service. They might be inclined to dabble in their affairs, but if the profession showed that their chief concern was to do effective work the public would support them. The profession had pronounced itself very strongly in favour of the recommendations of the Commission not only at public meetings but also in the country, where poor law officers were derelict and without means of communicating with the centres in Dublin. The change to an efficient County Service was bound to be beneficial.

Dr. Wright (Dalkey) did not think any one could doubt that the National Medical Service would be of great benefit to the sick poor. The carrying out of the recommendations would mean that the younger men would be sent to the outlying districts

Digitized by Google

where they were most needed. Nor could there be any doubt as to its benefits to the profession since it opened up the possibility of promotion. Boards of Guardians would, of course, oppose the recommendations from a natural dislike to have patronage and influence taken from them. The Commission, however, only proposed to take away the election of the medical officers, and he thought any opposition would be got over if it was clearly understood that the State would pay, and that the boards would have full control over their medical officers while holding office. The rates available for sanatoriums should be unlimited.

Dr. P. J. Garland thought the crusade against consumption should be initiated by a reformation of the Public Health Service in the country. It was controlled not so much by its officers as by the tenement house and slum owners, whose interests were so jealously looked after by the local bodies that it was impossible for an active and efficient officer to discharge his duties. That department must be taken over entirely by the State.

Mr. M'Ardle said that shortly before the meeting of the Irish Medical Association he objected very strongly to the State Medical Service under the conditions laid down. Afterwards, when he had learned more about it, he became an enthusiastic supporter of the recommendations of the Commission. The provisions for the benefit of the people generally were so sound that it would be criminal to oppose the scheme for any petty reasons. He did not think there was any need for an alternative scheme. They should confine themselves to broad principles and not to minor details of policy. He thought the question of consumption held a position second to none in importance in those recommendations. If they could not eliminate it they could check it.

Dr. Delahoyde said the operation of the Poor Law System had had a demoralising effect on the country, and had destroyed thrift. It would be useless for them to support a State Service that would do away with the principle of local control. All entrants should start on equal rights, but there might be certain allowances suited to certain individual conditions.

Mr. W. Micks and Dr. Coey Bigger also spoke and explained some of the recommendations of the Commission that had aroused adverse criticism.

Dr. Donnelly, in replying, said his paper had justified itself

Digitized by Google

in eliciting such a valuable discussion. If they were to get anything done in a reasonable time there must be some compromise. The trend of popular opinion was against centralisation, and the bulk of the people objected to the service.

Dr. McWeeney, in replying, said he agreed that a penny in the pound rate would be insufficient to cope with tuberculosis, but they should see what they could do with that for a beginning. In view of the tremendous mortality from tuberculosis they ought no longer to postpone their efforts, and should not wait for the remodelling of the Public Health Service.

Mr. M'Ardle proposed the following resolution:—"That the Section of State Medicine of the Royal Academy of Medicine in Ireland desire to express its approval of the suggestion contained in the Report of the Viceregal Poor Law Commission to convert the entire Poor Law Medical Service in Ireland into a National Service, to be paid by the State, to be entered by a competitive examination, the members of such service to be jointly controlled by the central body and the local bodies, and that the medical profession should have one representative on the central body."

Dr. Craig seconded. The resolution was passed.

Digitized by Google

THE STATE AND SYPHILIS.

By G. R. SEYMOUR STRITCH, J.P.;
Deputy Governor, Apothecaries' Hall, Dublin.

[Read in the Section of State Medicine, April 19, 1907.]

The State and syphilis is a study of so great importance and size that it is impossible for me to go fully into it this evening. My desire, therefore, is to furnish you with a *résumé* of the subject, purposely excluding any extensive description of the Contagious Diseases Acts of 1864–1886 and of the Report of the Special Committee appointed to enquire into their working and results. I refrain from doing so, because I believe that, like certain plays, they are only adequately studied in one's own room. Yet in a paper of this description it will, of course, be necessary to frequently refer to them.

This Section of the Academy is, no doubt, aware that one of the alleged causes of the ignorance of the people as to the necessity of avoiding syphilis and its sequelæ is due to the culpable indifference shown by the various hygienic and sanitary societies to the study of its prophylaxis.

As a discussion is to follow the reading of my paper I shall endeavour to "state a case" urging the necessity for some active measures being instituted by both the Government and people against the prevalence of venereal disease. Medical men have invariably agreed to the principle of doing so, but the methods adopted for the purpose have always been of a contentious nature.

Let us first consider venereal disease from the sordid view of finance. It is impossible for anything short of a Parliamentary Commission to discover the full pecuniary loss to the nation in consequence of syphilis. In addition to returns from

Digitized by Google

Government bodies, asylums, general hospitals, &c., it would also be necessary to discover the amount actually spent by philanthropical societies for the care of young families rendered destitute through the premature death or break up of their syphilitic parents.

Fortunately the army and navy estimates are available, together with their sick reports, and by considering these we will be able to form some idea of what syphilis and gonorrhœa cost the nation in the way of money only. The army estimates for the year are £33,023,561. Now, as there are, on an average, 10 per cent. of soldiers inefficient from venereal diseases, we are, I claim, entitled to subtract one-tenth of these thirty-three million odd pounds as being the cash equivalent of this proportion of men off duty—inefficient. That is to say, £3,023,561 is the annual loss to the nation for venereal disease in the army.

Now, turning our attention to the navy for a moment, we find there that the estimates for the year are £33,573,302, and also that the number of sailors returned as constantly sick from venereal disease is one per cent. By repeating the same process of calculation as we did in the sister service we attain the sum of £335,790 as the cost of venereal disease in the navy.

I am, of course, perfectly aware of the fact that these figures will be disputed, probably on the grounds that I have included the gross estimates for these two services, and have made no deductions for such other obvious sources of expenditure as the works, buildings, repairs, guns and ammunition, and chaplain and medical departments, pensions, superannuations, and so on, *ad infinitum*, down to the men's buttons and boots. But to me it appears that all these, though essential in their way, are in reality mere accessories in the armamentarium of the fighting man himself, who is the soul and vital force that gives them life, that without him they remain but useless objects, becoming merely white elephants,

Digitized by Google

and, so far from having any deduction made for them in our figures, they constitute an additional source of loss.

To render my meaning perfectly clear let me explain. If you expend so many millions on the building of men-of-war, and the necessary sailors to work these vessels are unavailable through illness, then, I think, it should be conceded that the capital expended on these ships as a first charge, together with the interest on the same and the extra cost of preserving them, is so much dead waste. If a man-of-war is too bulky an illustration, apply my argument to rifles, and the significance of my statement will perhaps be easier to comprehend. Furthermore, though the daily ratio of inefficient in the navy is apparently but one per cent., yet, so far as I can make out from the figures contained in the Medical Director-General's Report on the Health of the Navy, the actual number of men per thousand who acquire venereal disease is no less than that occurring in the army. I am therefore forced to conclude that the one per cent. of inefficients alluded to only designates sailors actually confined to hospital, or its equivalent, on board ship, and that the majority of venereal cases are allowed to go about the vessel, probably performing some light or preferential duty. Whereas in the army similar cases would be detained in hospital, lest they should disseminate their diseases amongst the civil population. If this be granted, then the estimated cost of venereal disease in the navy will multiply itself by ten (for, of course, the men, though able to move about and not obviously returned as inefficient, would not be in a condition to undertake active duty in the case of war).

So far as the pensions and what the Admiralty terms "compassionate allowances" are concerned, if an analysis of these be made it will be found by deducting the amount of money expended in such payments to those men whose retirement from the services was due to illnesses consequent

Digitized by Google

upon causes within their own control, it will be found, I say, that the figures are not lessened.

As evidence of this I quote the following from the official returns:—In 1905, 17 patients were admitted to the Royal Naval Lunatic Asylum, Great Yarmouth; of these 4 were officers, and 7 of the number had general paralysis of the insane. Also on the 1st of January of that year there were 163 patients in this Institution, 39 of whom were admitted for general paralysis of the insane. Of these 153 patients, 39 were officers. These figures show a regrettable disproportion of officers as compared with the number of men. The individual allowances of these officers would be larger than those of the men, and would affect my figures accordingly.

The National expenditure for the supply services, including the Customs, Inland Revenue, Post Office, &c., amounts to £43,109,137, and if, contrary to my experience as to the prevalence of venereal disease generally, we only attribute the same percentage to these departments as we have done for the navy—that is to say, "the minimum amount"—we obtain £435,543, and, adding this amount to those of the army and navy, we make a total of £3,796,896, which John Bull is called upon to pay in hard cash annually for venereal diseases and the questionable moral tone of free trade in prostitution. But this figure is not all, for it takes no count of all those indispositions consequent upon the debilitating effects of these diseases, nor does it include the vastly greater proportion of cases for which men obtain private certificates for assumed ailments from unsuspecting practitioners. This latter remark does not apply to the fighting services.

Personally I am disposed to estimate the cost to the nation from venereal diseases occurring amongst the army, navy, and other Government departments at £7,000,000 a year.

I will now, gentlemen, with your permission, consider the

Digitized by Google

greater loss to the Empire, that of the physical degeneration of the race and loss of life *as a direct consequence of syphilis.*

The rise and fall of a nation may be considered in direct ratio to the physical health of the people and their birth-rate. I shall endeavour to trace the far-reaching effects of syphilis in this respect, and how much more it affects England than the other European powers.

St. Augustine is credited with the aphorism—"That all disease originally sprang from the sin of fornication." If, like some scientific theologians, we believe that the beginning of all things arose from one single creative act, and not innumerable repetitions, and if we follow Darwin's reasoning on the evolution of species, then, gentlemen, we must logically accept the dogma of the great divine and all that pertains thereto.

With this paragraph as a text, a moment's thought will show you the unlimited importance and possibilities that may be attached to its tenets. It is with regret that I cannot leave the subject here, but for the greater completeness of my paper I think it necessary to amplify the truth of the matter by some illustrations, and for brevity's sake I will select no more than two of the most terrible diseases to which the human race succumb—tuberculosis and cancer—and I will attempt to associate their origin with syphilis. I feel that my arguments are very deficient, but if they create a suggestion in the mind of others with more ability to enlarge upon them I shall be repaid for the temerity with which I now approach the subject.

Since Schaudinn's discovery of the *Spirochæta pallida* as the specific germ of syphilis, the possibility of Lustgarten's bacillus has been, of course, finally ignored, yet there are interesting features peculiar to that particular bacillus. It is found in sections of tissues involved in syphilomata and in the pus from hard chancres. Also it resembles the tubercle

Digitized by Google

bacillus not only in appearance but also in staining reaction, and, in addition, seems to be identical with the smegma bacillus so frequently present in the secretions of the prepuce or vulva. There is no actual evidence in these references, but the association of ideas that they give rise to are suggestive. Whether bacteriologists can trace any lineal descendency in the evolution of the tubercle bacillus from that of *Spirochæta pallida* or not, clinical observers are familiar with the marked resemblance many of their various manifestations bear to each other, and also of the powerful ally one organism is to the other in the destruction of any individual suffering with a mixed infection of the two. There is also no doubt that syphilitic subjects are markedly predisposed to scrofulous conditions leading up to tuberculosis. This is especially obvious in people with hereditary syphilis; in them the specific poison seems to produce such deleterious effects upon the general metabolism and nutrition, and also upon the natural resisting and germicidal powers of the tissues, that they assume the scrofulous diathesis and develop one or other of the ill-effects produced by the invasion into such a fertile soil of tubercular bacilli.

Vidal (an authority) once asked—"Is scrofula syphilis?" and Dr. Tobun, a late Surgeon to St. George's Hospital, stated that "nearly all the eye cases which came before him were due to scrofula, if not due to syphilis." Jonathan Hutchinson says that relapsed chancres are tubercular; and, finally, Douty, of Davos Platz, believes that 30 per cent. of tubercular men are syphilitic, and he quotes Dr. Klause, who, as "Chief" of the phthisical wards of the Charité, Berlin, and who has also been in charge of the venereal department, as stating that "fully 50 per cent. of tubercular men patients were syphilitic, and that he noticed that more than 50 per cent. of the venereal cases showed signs of lung disease." At present there is a remarkable and gradually increasing number of communica-

Digitized by Google

tions to the medical journals reporting syphilis of the lungs, which had been previously diagnosed as pulmonary tuberculosis.

Gentlemen, time forbids my continuing to present additional arguments and illustrations in support of this theory, nor do I think that amongst a professional audience it should be necessary to do more than furnish one or two concise examples. Under such circumstances mere repetitions, whilst affording no fresh proof, would be monotonous in the extreme.

If scrofula be the connecting link in the evolution of disease between a syphilitic ancestry and a tubercular progeny, then the death-rate and helpless invalids resulting from these diseases must be combined with those due to syphilis.

Let us, for the sake of argument at least, grant these premises, and we are at once in a position to tabulate in figures what the nation loses through death from these causes. The total death-rate per annum for the United Kingdom is 657,525 deaths; these figures include 45,647 deaths occurring from old age that are literally normal deaths. And, as we are considering the number of deaths special to a particular cause in order to contrast their sum with that resulting from all other diseases terminating fatally, it is necessary to deduct these 45,647 normal deaths from the gross number of 657,525, which leaves a total of 611,878 deaths due to disease. Of these abnormal deaths no less a sum than 81,812 are directly due to syphilis and tubercular disease, constituting about one-seventh of the total amount, and making no provision for deaths registered under headings which in many instances find their origin in syphilitic degeneration, such deaths are frequently tabulated under the diseases of the organs of circulation and nervous system. Of course it is understood that of these figures, taken from the three Registrars'-General Statistics, syphilis proper constitutes but a small proportion. Yet as time goes on and we have become more efficient in attributing

Digitized by Google

death to its primary cause, and also as we learn to appreciate the importance of compiling accurate statistics, and on this account think less of family susceptibilities, then this discrepancy between the number of deaths alleged to be due to other causes than syphilis and tuberculosis will diminish. It might tend to greater accuracy in statistics if some means could be devised by which certificates of death could be sent direct to the Registrar-General, without their contents becoming ultimately publicly known. This might be feasible if insurance companies would be satisfied, like the majority of coroners, with a certificate to the effect that death was due to natural causes, and a rider, if necessary, stating the disease from which the patient died was or was not on their schedule of bad lives, as considered from an insurance point of view.

By referring to the relation of cancer and syphilis I do so simply as a reminder of the possibilities of the far-reaching effects of the latter malady and also a smaller item in support of St. Augustine's pronouncement. If old syphilitic tissue in one part of the body can be proved to be an ætiological factor in the ultimate formation of cancer in its site, surely it is natural to assume that the same metamorphosis may occur in other organs of the body similarly effected. Is it not conceivable that such may be the case? If so, how can one show that it is not also possible or even probable? May I ask, what relation has gumma of the liver to cancer of that viscus? As an illustration of cancer following syphilis in an organ I need only refer you to leucoplakia and cancer of the tongue. Professor Poirier has said: "Everybody cannot have cancer of the tongue, two conditions are almost indispensable—you must be a smoker or syphilitic, especially the latter, and those who combine these two conditions have a much greater risk than others." Cancer of the tongue, he says, may be called the cancer of syphilitic smokers. Of 32 such cases he found that 27 were syphilitic, 3 of the remainder probably so;

Digitized by Google

the other 2 cases, I think, he said were women. Again, Fournier found that of 184 cases of cancer of the mouth 155 had syphilis, and in the remaining 29 the antecedents were unknown. In these cases leucoplakia had the same relation to the cancer that scrofula had to tuberculosis.

It is not my intention to make any allusions to the possible benefits to the race forfeited through the loss of 81,812 lives annually, but I certainly think it is a matter for the consideration not only of the State but every man, woman and child who values the health, prosperity and happiness of his home and country. There is a dangerous tendency amongst people to console themselves with the fallacious belief that the venereal evil is diminishing not only in extent but in virulence. This error is based on the fact that the statistics of the Registrar-General for England show a progressive decrease in the number of deaths accruing annually from syphilis since the year 1865, when the ratio per 1,000,000 of the population was 90 deaths. At the present time the ratio of deaths from syphilis is only 53 per 1,000,000 of the population. It is difficult to account for this fall, and the hypothesis that it is owing to the more skilful treatment of the disease by medical men is untenable, or at least insufficient, for the reason that a similar diminution in the ratio of deaths does not extend to either Scotland or Ireland. In the former country a comparison of the average death-rate for the decennial ending in 1904 shows a slight increase in ratio for the latter period. Whereas in Ireland, comparing the decennial ending in 1874 with that of 1904, shows the insignificant diminution of 2 deaths per 1,000,000 of the population; but since the year 1895, when the ratio of deaths was 77 per 1,000,000, the number has materially increased, till in 1904 it reached no less a sum than 109 deaths per 1,000,000.

The returns of the Glasgow Lock Hospital also bear out the statement that syphilis is more prevalent now than formerly

Digitized by Google

(allowance being made in Glasgow for its increased population). And Dr. Bernard, the Surgeon to the Liverpool Lock Hospital, informs me that there is no lack of syphilis in that city. It is a curious anomaly that whereas venereal disease, as judged by our practice, appears to be on the increase in this country, according to information received from the Chief Commissioner of Police there are less common prostitutes than formerly. I do not know how it is, but it seems a strange coincidence, that from the time the police appear to have ceased to keep statistics of brothels and prostitutes in 1894 (at which time they had sunk to less than half of what they were when the stimulation of the Contagious Diseases Act commenced in 1866) the ratio of deaths has increased so enormously. It is also curious that since the same date, 1894, the admissions to the Lock Hospital have diminished from 647 to 431 in 1903. May we not infer from these figures and the death returns that syphilis, if not proved to be more extensive, is at least more virulent? Nor can the army statistics be taken as a criterion of the diminution in prevalence of syphilis amongst civilians; the improved social circumstances of the soldier do not extend to the rest of the community.

In 1892 England had 201 per 1,000 of her soldiers incapacitated from duty through venereal disease; Russia had 44.6 and France 44.0 per 1,000. This ratio has fortunately improved. In 1900 England had 93 per 1,000 incapacitated, whereas France had 37.2 and Germany 17.8. These figures are worthy of the State's attention. What a most excellent ally syphilis in our army must be to our Continental rivals—military and commercial. It is a significant fact that in India "virulent native women have been sent amongst our garrisons by secret societies with a view to disabling the men" (*vide* Surg. Major Niven, *British Medical Journal*, 1899).

Having now endeavoured to show the necessity for State and individual action against the prevalence of venereal

Digitized by Google

disease, I must beg your patience for a little longer in order to refer to the hygienic aspect of syphilis. This has already been defined by the single word "chastity," but, having regard to the fact that 10 per cent. of syphilitic cases occur in absolutely virtuous people and young children, such a definition can neither be regarded as accurate nor sufficient.

I would suggest that there is a great trihedron upon the basis of which we might construct a system capable of checking, if not completely extinguishing, the disease. This triune would consist of moral, social, and legislative action; those powers which have been found by experience to be the most successful against the two other human scourges—intemperance and tuberculosis. Indeed these evils are complimentary to each other, and anything that affects one or other of them will ultimately affect the lot. Therefore, in the common name of humanity, let the various associations existing for the suppression of any one of these evils set aside their prejudices, and not forget that by neglecting the others they are retarding their own success. For example, there are many societies for the suppression of intemperance and tuberculosis, the members of which would not tolerate any attempt on the part of their society to interfere in a movement for the prevention of syphilis. Such prejudices should be overcome, and each society carry on the good work they are doing, but under a common executive—that is to say, the ideal arrangement would be an amalgamation of all existing societies under a single head, each society still retaining its complete independence of action for furthering its own cause, but receiving suggestions from the head office. With regard to the moral aspect of the subject in connection with the prophylaxis of syphilis, I shall say no more than to urge that we, as medical men, should confine ourselves as experts to the purely scientific means of combating it; it is not given to us, any more than

Digitized by Google

to any other members of the community, to possess a plurality of facilities, and when this subject previously occupied men's minds an actual Babel was created by individuals giving evidence on matters wherein they had no training but mere fancy to guide them. Parsons, speaking as doctors and *vice versa*:—Let all labour in that particular class to which it pleased Providence to call them. It was moral interference and agitation to the amount of 10,315 petitions, bearing the signatures of 2,205,506 subjects of our late gracious and ever regretted Majesty Queen Victoria, that occasioned the repeal of the Contagious Diseases Acts, after which, as Fournier says, "prostitution, and with it syphilis, regained its liberty throughout the British Empire." This agitation practically consisted of Nonconformist ministers, together with numbers of women, and a type of individual who must have been analogous to the Blue Lights in Peter Pan, "those delightful little sillies who are not quite sure what they are." The members of this crusade were known as the "Shrieking Sisterhood." You can judge of the tactics of these people, several of whom sank to canvassing prostitutes in brothels for signatures for their petitions, another forged his groom's name to a letter in which he made libellous charges against the police on behalf of a woman who afterwards married the said groom; another bore such false evidence that on a sworn enquiry being made it was entirely disproved, and so on *ad nauseam*. The female members held some peculiar views—one, a parson's wife, stated that it was a mockery of God for chaplains to attend these women in hospitals with a view to their reclamation; others, who must have been, I believe, of the "Blue Lights" type, argued that syphilitic patients deserved all they suffered from, and that it was a "Divine vengeance" on their sins, also that to attempt to cure them was to encourage them in their wickedness—making, as they complained, "sin easy." It was impossible to make these people under-

Digitized by Google

stand that the innocent wife and baby, aye, even the very babe unborn, often suffered with the guilty.

All these sayings are recorded in the Blue Books containing the report on the Contagious Diseases Acts.

A remarkable feature of the agitation consists of the fact that the same political party were in power in 1864, when the first Act was passed, and again in 1886, when they were repealed; and also that in spite of every one of the Committees appointed by Parliament to enquire into these Acts, that all of them, without exception, recommended their continuance. And again, in spite of the fact that all the Continental powers deemed it incumbent on them to possess laws regulating prostitution, yet the Government by some subtle process of reasoning determined on the repeal of these Acts, and accordingly did so. The unworthy suspicion will arise in one's mind that their conclusions may have been to some extent effected by a nice appreciation of the voting power of the 2,205,506 petitioners, a sufficient force to secure all the Scottish seats had its members but the franchise. The repeal of the Acts was voted in March, 1886, and in the August of the same year righteous Nemesis constituted a new government—a further illustration of the value of the names attached to the petitions alluded to.

Socially we can do more to eradicate venereal disease than by any other means. The truth of this has been most happily recognised by a firm of billiard table manufacturers, whose advertising catch-word is "keep your boys at home." This is the gist of the whole thing, only it is necessary to extend its principles beyond the domestic circle. Indeed, public and government bodies have already recognised this, and supply for their employees various forms of entertainment that are calculated to keep them out of harm's way, thus reducing sick absences. You all know of Lever Brothers and of their model village, Port Sunlight; also of Burroughs & Wellcome's

Digitized by Google

Admissions per 1000 of Stre

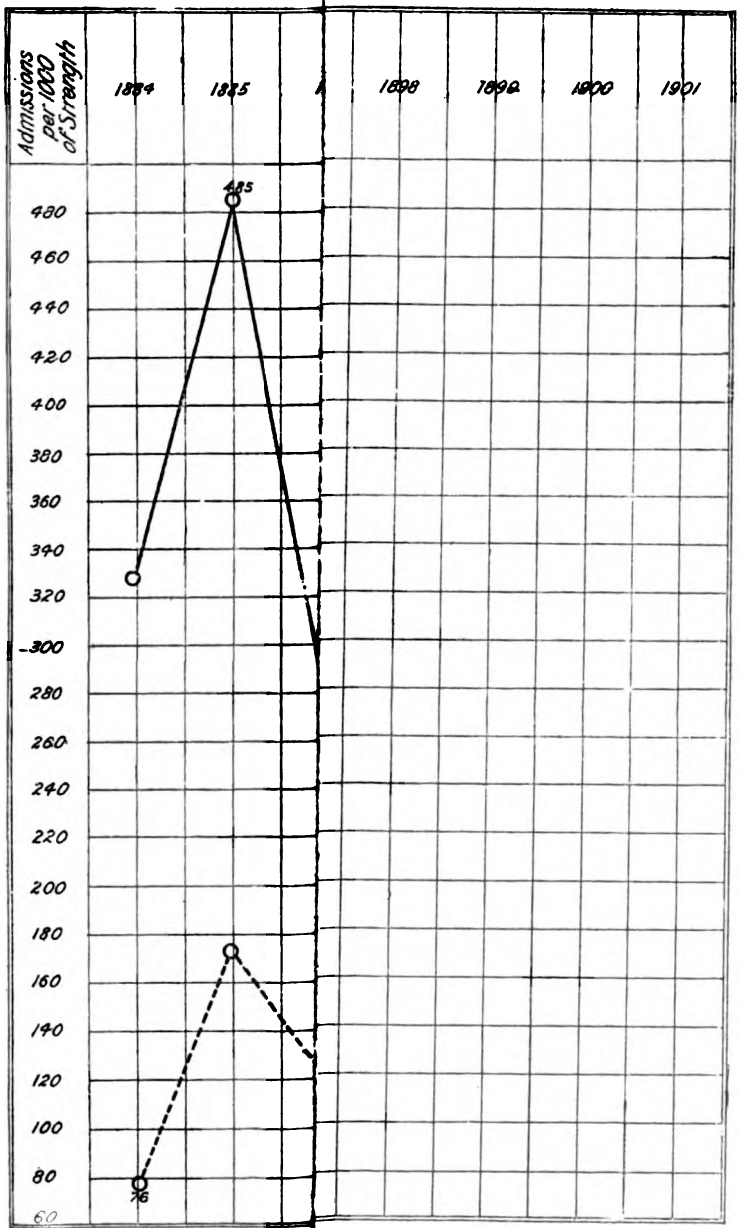
Primary and Secondary Sy

Black line Cape Town.
Dotted line Rohilkhand.

Prepared by

Major T. Browning R.A.M.C.

A.M.D. Reports, 1897.



Cape Town, without average 168.

Rohilkhand, ,, ,, 132.

Digitized by Google

Digitized by Google

picturesque habitation, with its innumerable boating and other attractions for their employees. The army and navy are also alive to its importance, and supply comfortable reading and recreation rooms for their men. The pity of it is that the heads of families, in the majority of cases, fail to recognise the necessity. Some fond delusion seems to blind them to the fact that their children are, after all, but the same as those of their neighbours, whom they can readily enough perceive to be daily developing more questionable companions and habits. Many of them depend on paternal cuffings and maternal knaggings as sufficient to counterbalance the attractions held out by wily and professional caterers for the guileless lambs they hope to fleece. They are received literally with beaming smiles and open arms of welcome by heavily rouged paramours, and flattered into believing themselves thundering fine fellows, whilst at the same time they learn to smoke cheap cigarettes and quaff, with unflinching countenance, drinks they are unaccustomed to. In short, a kind of Bohemian club life develops. Is it any wonder that, led by such attractions, they enter by the broad and gilded portals the road to ruin.

No doubt a lot has to be said on behalf of the parents. The father with limited means and many cares cannot act the part of *bon camarade* to his son, and the mother, by the time her boy grows into young manhood, is already in the shadow of her menopause, with all its hysterical and irritable accompaniments.

There can be no doubt that if fathers retain throughout the entire confidence of their children they will be in a position to observe the bent of the boys' minds, and with tactful remarks create and cultivate by suggestion the necessary counteracting influence.

In every instance they should point out the pitfalls common to each period in their sons' growth; and most assuredly they should encourage their sons not to fear confessing any trouble

Digitized by Google

that might befall them. I personally knew one young fellow of seventeen years who died of neglected gonorrhœa because he was in terror of acknowledging his condition to his father—a stern man—and because he had not the necessary money to visit a doctor. The parents of this unfortunate lad never ceased to feel the pain of his death.

The profit and loss account quickens the understanding of shrewd commercial men as to the necessity for improving the social environment of their employees; whereas we can only rely upon the diffusion of knowledge to effect that of parents. Social prophylaxis against syphilis should not end here. For instance, in national and public boarding schools suitable instruction on these subjects should be given to the boys. A Congress in Paris has recently considered and passed a resolution to this effect. It should be remembered that school-boys and young girls frequently develop venereal disease. Out of 10,000 cases of syphilis in males 1,420 will be amongst men under twenty years of age, and out of a similar number of syphilitic women 3,130 will be below the same age. In public bodies, and where ambulance classes are held, a lecture should be included giving adequate information on the subject of venereal diseases.

Without desiring to appear pessimistic I should like to add that even in infancy and the nursery the subject should not be lost sight of. By this I do not mean to imply the obvious dangers arising through syphilis insontium. I desire rather to point out the necessity for constant supervision of the *morale* of the nurses. In Paris it is the custom, according to Fournier, for these people to attract the attention of crying children by tickling the genital organs of their charges.

The morbid curiosity of young nurses is also a factor in generating a precocious viciousness in young boys; and it is an undeniable fact that many a young fellow first goes astray with the domestics in his parent's house

Digitized by Google

Phimosis is another factor having an irritative tendency, and the Jewish rite of circumcision is undoubtedly an important means of preventing venereal disease.

Intemperance is an ætiological factor in the cause and dissemination of syphilis only second to that of the uncongenial surroundings in the private life of the individual.

How far syphilis *d'emblée*—that is, syphilis without the initial development of a chancre—and syphilis insontium are responsible for the dissemination of syphilis it is difficult to state. We know entire families and schools have been diseased in this fashion. To us, medical men, the matter is of peculiar importance, inasmuch as we might easily contract the disease in the professional discharge of our duties and unknowingly be the innocent means of spreading it. This is especially likely to happen when one develops syphilis without the chancre and its accompanying warning. It is certainly difficult to believe that this latter can be of common occurrence, if it ever really occurs at all; at any rate there are many who believe that syphilis can develop without a chancre. I refer to the matter of syphilis *d'emblée*, as it is always well to be familiar with possible sources of danger, such as might possibly follow the cryptic inoculation of the specific virus.

I observe in the reports of the Advisory Board for the Army Medical Services a description of various means adopted by men for the prevention of the disease. The following is a cursory statement of the individual precautions which may be practised with this object in view:—Condoms may be worn, and the actual act of fornication should not be prolonged unduly, and after the emission of the semen separation should be at once effected. The parts might be annointed with calomel ointment previous to intercourse; this precaution, followed by immediate micturition, practically clears out the urethra of any infectious material that may have entered it. Later on free ablutions, followed by the applica-

Digitized by Google

tion of a 2 per cent. solution of silver nitrate, will prevent soft chancres; this should be applied as soon as possible after coïtus, and certainly within 24 hours. Metschnickoff has proved that a chancre will not develop on the site of an inoculation with matter containing the *Spirochæta pallida* if mercurial ointment is rubbed into the part within one hour of the contact being made. Without this precaution syphilis would inevitably occur.

It should be remembered that a condom may burst, and also that it is no protection whatever to the scrotum, which may come in contact with mucous patches and condylomata on the adjacent parts of a syphilitic woman.

It is essential when there is an abrasion on the surface of the penis that celibacy be rigorously maintained.

An ordinary intelligent man, with a little more control than a brute, ought to be able to form a fair idea as to whether a woman is dirty, sore and diseased, and restrain himself accordingly. Unfortunately it frequently happens that under these circumstances a man is beyond the power of reasoning, or even of caring—blinded by passion or drink, likely by both!

The question of the diagnosis of syphilis has often been alluded to when discussing its hygienic aspect. All I desire to say here is that adenitis, general or local, is of no diagnostic significance, except when obviously recent, enlarged and tender. In 100 adult individuals, provided they are not very obese, glands will be felt in exactly 100 per cent. In the Children's Hospital, Dr. Effie Gordon Stewart, the R. M. S., kindly investigated this matter for me, and found that glands were enlarged in 32 out of the 56 children, and only 11 of these had signs of tubercular disease. In the remaining 21 no pathological explanation could be discovered.

I now come to the final portion of my paper, that dealing with the legislation, which contains as many knotty points

Digitized by Google

as an Irish blackthorn. State regulations for the segregation of people smitten with contagious and infections diseases has existed from the earliest times, nor were the Contagious Diseases Acts a new departure in the constitutions of our country for the control of prostitution and disease. So far back as the commencement of the 17th century, in the reign of James I., and when Dr. Harvey first practised man-midwifery, it was enacted that any man known to leave his house whilst suffering from a contagious sore, having been warned to the contrary, would be guilty of felony or forfeit his life without the benefit of the clergy. Too frequent fornication was at this time also a criminal offence. In Aberdeen, so far back as 1497, the Town Council ordered that "all wemen be charget and orderit to desist from their vices and syne of venerie," and close all their brothels and to work for their sustenance. In Edinburgh during the same year all people afflicted with the disease had to appear on the sands of Leith and be quarantined on the island of Inchkeith.

The Contagious Diseases Acts of 1864–86 had for their purpose the registration and periodical medical inspection of common prostitutes, with power to restrain them in hospital until they ceased to be contagious. They also provided chaplains for the reclamation of the women. These Acts were applied to 15 garrison stations, all but three of which were in England, the remainder were applicable to the Curragh, Cork and Queenstown, none of them applied to Scotland or the North of Ireland. Venereal disease had been decreasing at the time of their inauguration, but a comparison of the 15 subjected stations with all the rest of the population, including the unsubjected stations, shows that the improvement was greater in the former. During the time the Acts were in vogue the Public Health Acts for England, Scotland and Ireland were passed, but sanitary authorities have apparently taken little or no interest in the subject, which indifference

Digitized by Google

has, no doubt, prejudiced many people into the belief that any interference was unnecessary from a hygienic point of view. It is unnecessary to enlarge upon the fact that the detention in hospital of a body of people capable of spreading a disease in the plying of their trade is essential if we are to counteract the disease.

In addition to the irrefutable and convincing evidence contained in the Blue Books showing the necessity and benefit derived from State legislation, there are three facts I should like to mention. In the returns for 1905, *re* the health of the navy, the Medical Director-General states that during the visit of the fleet to the Baltic Sea very few men developed venereal disease, which he attributed to the fact that the ports they called at were under the Contagious Diseases Acts.

The Army Advisory Board tabulate the amount of venereal disease existing in the German, French, Austrian and Russian, Italian and British armies. Of these six Powers two—Italy and England—have no Contagious Diseases Acts, whereas the remaining four have, and by contrasting the ratio of disease of the two former with the combined total of the remainder we find that they exceed by one-fifth that of the latter, the actual figures being—

Italy and Great Britain	...	...	172
France, Prussia, Austria and Germany	...		148

And yet this report does not advise the re-enactment of the Acts.

Again, in India, Hong Kong, the Straits Settlements, Ceylon, Malta, Gibraltar, Egypt, South Africa, and St. Helena, and in Bermuda we have legislative measures for the regulation of prostitution, but at home it appears we dare not interfere.

I already pointed out that the results of the Committee inquiring into the working of the Contagious Diseases Acts were

Digitized by Google

on every count found favourable to their continuance, and the evidence brought forward proved conclusively that the Acts fulfilled the purposes for which they were designed. They lessened venereal disease in the stations to which they were applied. To be of real use, they or some equally far-reaching power, whether held purely by the police or not, should be enforced throughout the entire country, and not applied piecemeal and patchy.

All general hospitals should contain external venereal departments for male patients. Women should not be treated in this way, as they continue to spread the disease, "*il faut vivre*" they say. This was Rawdon Macnamara's evidence at the Commission of Enquiry on these Acts.

Dr. Ninian Falkiner, in a paper read at this Section, suggested the notification of venereal and tubercular disease, and this system is, I believe, carried out on the Continent. The consequence is that the origin of the disease is traced, and the individual prosecuted; they cannot plead ignorance, as the doctor who notifies each case is bound to warn his patients of the dangers of disseminating it.

In Munich a patient was imprisoned for having diseased a woman, on the plea that he had inflicted a grievous bodily injury.

(1) If responsible men would have the moral courage to report to the police every woman who solicits them, the result would deter women from their brazen and often forcible invitations to transgress. (2) Let the Government or municipal bodies provide gratuitous treatment in all dispensaries situated in each quarter of the city, and make notification compulsory. (3) Let the Medical Council insist that a special course of study in dermatology and syphilis be included in the curriculum of medical students, and venereal disease will degenerate into a sporadic type. At the present time it is practically of this nature in Sweden, where formerly it raged.

Digitized by Google

In conclusion,

To each man's Ego
Do I now appeal,
That he unheeding others
May himself reveal.

BIBLIOGRAPHY.

Lancet; British Medical Journal; Transactions Royal Academy Medicine, Ireland; Dublin Journal Medical Science; Encyclopædia Medica; Text-book Medicine, G. A. Gibson; Manual Surgery, Rose and Carless; Theory and Practice Hygiene, Notter and Firth; Fournier's Treatment and Prophylaxis Syphilis; S. S. Wilcox's Essentials Genito-Urinary and Venereal Diseases; Blue Book "Contagious Diseases Acts"; Report Army Advisory Board on Venereal Diseases; Registrar-General's Returns England, Scotland and Ireland; Army and Navy Estimates; Report Health of the Navy.

COLONEL BUTT, R.A.M.C., said his experience of the disease had been limited to the army, but he had often thought that the medical profession did not look at the matter properly, and that they, in common with the general public, did not look facts in the face and recognise that, notwithstanding all sorts of moral and educational influences, things were much the same as they had been in the past. Legislation was required for a section of the community who would not submit themselves to self-control. The State would be guided in the matter largely by the opinion of the medical profession, and yet the whole subject bristled with controversy largely as the result of ignorance. He was convinced that no advance could be made towards stamping out the scourge until every member of the profession took a whole-hearted interest in it. His own experience of his last three years in India had led him to the conviction that the disease could be stamped out. During that period, in a garrison of one thousand men, he had not one case of syphilis, although there were many prostitutes living on the confines of the garrison, and none of these contracted syphilis, although the number of syphilitics in the garrison never fell below one hundred. He admitted that the accomplishment of this was made easy for him by the magistrates, commanding officers, and his brother medical officers working with the one desire of stamping out the disease. They induced the soldiers to believe that they could benefit them by submitting to treatment. There was no stigma attached to women who suffered from venereal diseases going into the cantonment general

Digitized by Google

hospitals, and the native women attendants were got to explain to the women the benefits of treatment. The result was, he thought, strong presumptive evidence in support of his contention, that so long as local manifestations of the disease had been removed and the treatment was continued the disease could not be communicated. It had occurred to him that in order to get to influence the prostitutes to submit to treatment use might be made of the Salvation Army. That society had done immense good in other directions, and if it were shown that the profession was anxious to combat the disease on humanitarian grounds he believed the society would assist them. He believed that by treating syphilis patients as sufferers rather than as offenders they could be got to submit to treatment, and that thus they would go a long way towards controlling what he considered a preventable disease.

Dr. Henry FitzGibbon said the difficulty which had always existed in dealing with patients in the Lock Hospital had been the absence of controlling power to get the patients to remain under treatment. The tendency with the patients was to think that they were cured as soon as the disease was out of sight. Power was required to keep prostitutes in hospital as long as there was active syphilis present, and to keep them under observation and treatment as extern patients afterwards. There was also a difficulty in connection with young men who had not the means to pay for treatment, and who had no encouragement to go to general hospitals.

Major Brown, R.A.M.C., said that although he had never been able to connect syphilis and tuberculosis, as suggested by Dr. Stritch, he had always found that when syphilis was contracted by a patient with tuberculosis he went from bad to worse, no matter what the treatment was, unless he was got early. As regards prevention, keeping boys at home was an excellent method, if it could be done; but a better plan was to protect them when they went abroad by legislating for them, and legislation meant bringing back the Contagious Diseases Act. The majority of those who indulged in that particular vice were not open to moral persuasion. Syphilis, of course, could be contracted in many ways, and there should be some place where it could be cured. Women, however, who practised as prostitutes were not open to moral persuasion, and the only way was to compel them to remain in hospital or to report to a doctor until they could be

Digitized by Google

certified as free from the disease. Their efforts to stamp out the disease in the army did not seem to have had much effect. In Dublin, in 1906, the constantly sick from syphilis were 2.93 per 1,000, while in 1866 it was 1.72.

Dr. Pugin Meldon said that one of the first difficulties in curtailing syphilis was the difficulty of diagnosticating it early. He thought, however, that that would be only a temporary difficulty, and that the bacteriologist would aid them in telling the patients definitely whether they were suffering from syphilis or not. A further difficulty was that of keeping prostitutes in the hospital. They went in readily enough as long as they were sore, but they went out in a short time, and became infectious. This was the case with the very large percentage of patients, who were also heavy drinkers. Soliciting in the streets should, he considered, be made illegal, and the punishment should depend on whether they were suffering from venereal disease or not. If suffering from disease, they should be confined in a Lock ward or hospital, or in special prison wards, until cured, or allowed out on a ticket-of-leave principle. He considered also that any man who held connection with another individual while suffering from syphilis ought to be severely punished. The great difficulty in the way of legislative measures was the opinion of the public that the more syphilis was stamped out the more prostitution there would be. Their business, however, as medical men was to check disease in every form. The presentation of the financial side of the question, as mentioned by Dr. Stritch, might smooth over the obstacle of public opinion. Seven million pounds lost to the nation meant two pence or three pence off the income tax. That was a fact which the general public would appreciate.

Dr. Kirkpatrick said the question of State interference was as old as history. So far back as A.D. 1162 Parliament interfered for the regulation of brothels. If the public knew more of the history of the disease and the efforts which had been made to stamp it out the work of the medical profession at present would be much lessened. There seemed to be a general idea among the public that there was no regulation for State interference with venereal disease in Dublin. That was a mistake. Under the Act of Parliament, 5 Vict., c. 24, the police dealt very severely with prostitutes and soliciting, and in the Act, 48 & 49 Vict., there were very stringent regulations for the suppression of brothels.

Digitized by Google

He had received from the Commissioner of Police a table showing the number of women proceeded against during the last five years, 601 being dealt with in 1906. During the same period twenty brothels had been suppressed in each year. This afforded them a starting-ground for an active crusade against the disease. It was not always, as was urged, a merited disease, and he had only recently seen the case of a woman who had been infected by her husband, as the result of his contracting the disease, during her pregnancy, and she had infected her child. The morbidity and mortality of the disease justified them in urging the State to interfere in the matter just as it was interfering in diseases that cost the State an insignificant number of lives compared with the loss of life due to syphilis. The sentiment of the country was against the official registration of prostitutes, and he would rather follow the suggestion that the laws at present in force should be used against solicitation, and a man who could be proved to have infected a woman with syphilis should be liable to similar punishment.

Colonel Burtchaell said he had been in several American cities where prostitution was rampant, although the police arrangements absolutely prevented soliciting. If the prostitutes did not find the men, the men would find the prostitutes. The State legislated for zymotic diseases, but they were diseases of innocent people. Syphilis, however, was due to a voluntary act. If legislation was enacted it should be equally severe on the man and the woman, and he thought there should be some restriction on the marriage of syphilitics.

Dr. Winter said that the debate showed that the profession were not of one mind. Their policy should go along three main lines—(1) They should educate the people, and to do so they must first educate themselves; then (2) they could proceed to agitate for State interference; having agitated sufficiently they could then (3) proceed to try to get the State to act. In the prevention of the disease there was the difficulty that young men could not get away from their employment continuously to attend hospital, and it occurred to him that a possible aid would be for some of the hospitals to start an evening dispensary for men. He believed they would remain under treatment if allowed. He did not think the police could be very active against soliciting.

Mr. Stritch replied.

Digitized by Google

SECTION OF ANATOMY AND PHYSIOLOGY.

THE LATERAL FIXATION OF THE CERVIX UTERI.

By ELLA G. A. OVENDEN, M.D.,
Assistant Demonstrator in Anatomy, Women's Department Med. School, Trinity College Dublin.

[Read in the Section of Anatomy and Physiology, April 26, 1907.]

In a paper published in the *Archives of Gynæcology* in 1895,[1] Mackenrodt investigates the factors at work which hold the uterus in its normal position of anteversion and anteflexion. In the course of this paper he lays great stress on the action of a band of connective tissue, which he calls the "ligamentum transversalis colli." As this ligament is not described as such in any of the usually read text-books of anatomy, and in only a few of the text-books of gynæcology, and appears to be gaining in interest with those who have been working in the German schools, I have been led to carry out an investigation to see whether it might lay claim to the prominent position which Mackenrodt has given it.

The points which Mackenrodt brings out in his paper are the following:—

1. The lower opening of the pelvis is closed by the pelvic fascia, which sends firm bands to the cervix and vagina.

2. The *cervix* is held fast in its embryological position by ligaments, and the normal anteversion and anteflexion takes place by the bending of the cervix, not the corpus.

3. The uterine *body* is kept in position by its own weight and intra-abdominal pressure, not by ligaments.

Digitized by Google

4. There are fibres coming from the pelvic fascia to the side of the cervix which are sharply to be defined from the sparse connective tissue fibres between the layers of the broad ligament. It is this band that is the chief means of holding the uterus in position.

Mackenrodt denies the statements of Schultz, Schröeder, and Hodge, who all agree that the ligamentum rotundum has an influence in maintaining the anteverted position of the uterus. He supports his words by stating that he has often in the course of a laparotomy resected portions of the round ligament and retroverted the uterus experimentally; but that he has always found on subsequent examination—in the case of a healthy non-pregnant uterus—that the organ would right itself and be found anteverted again. None of the three authorities just mentioned lays any weight on the work done by a band of connective tissue running from the walls of the pelvis to be attached to the cervix; nor does Nagel nor Tschausow, who attribute the curve of the uterine body to the fact that it has grown in the limited room of the fœtal pelvis, the curve of which has given it the anteverted and anteflexed position.

The ligaments of the uterus as generally described in the text-books of anatomy are as follows:—

I. The broad ligaments containing between their layers—(1) the Fallopian tubes, (2) the round ligaments, (3) the ovaries and their ligaments, (4) the parovarium, (5) connective tissue and some unstripped muscle fibres.

II. The anterior (vesico-uterine) and posterior (recto-uterine) ligaments, which are formed solely by the reflexion of peritoneum from the uterus on to the bladder and rectum respectively.

III. The sacro-uterine which are formed of peritoneum also (Gray), but contain a good deal of connective tissue and unstriped muscle fibre. They run from the second

Digitized by Google

and third pieces of the sacrum, and are attached to the cervix just where it joins the body of the uterus.

IV. Lastly, the round ligaments which are attached to the lateral aspect of the fundus below the Fallopian tubes, and run from that, between the layers of the broad ligament, to enter the internal abdominal ring.

What I wish to show is that there is another ligament easily demonstrated anatomically, and, according to Mackenrodt, of great physiological importance in maintaining the normal position of the uterus. Mackenrodt defines it as follows:—"At the side of the vertebral column the pelvic fascia can be seen to give rise to a strong band which is inserted into the side wall of the collum uteri. . . . The small weak centre of areolar tissue, between the folds of the peritoneum in the broad ligament, is sharply to be defined from this fibrous band, which begins at the internal os and springs from the pelvic fascia. We speak, therefore, of the broad ligament only as the part covering the uterine body, and call the lateral band to the collum the *ligamentum transversalis colli*. It is the chief means of fixation of the uterus, and carries in its upper margin the chief artery—the arteria uterina."

J. Whitridge Williams, in his text-book on Midwifery, is one of the few who mention the ligament. He says—"At the lateral margin of the uterus the peritoneal covering of the broad ligament is reflected on the side of the pelvis. The inferior margin, which is quite thick, is continuous with the connective tissue of the pelvic floor. Through it pass the uterine vessels. Its lower portion—the "cardinal ligament" of Kocks or the "ligamentum transversalis colli" of Mackenrodt—is composed of dense connective tissue which is firmly united to the supravaginal portion of the cervix."

Digitized by Google

There can be no doubt that in the dissection of the pelvis this band forms an easily-defined and striking object. Between the layers of the broad ligament, at a level with the body of the uterus, there is very little connective tissue to be found. The two layers of peritoneum lie upon each other, separated only by some loose subperitoneal areolar tissue, the round ligaments, the Fallopian tubes, &c. At the level of the cervix, however, a thick band can be felt between the two layers of peritoneum. It is wedge-shaped in section, the apex of the wedge is directed upwards, and is just about the level of the point of entrance of the uterine artery. Traced to its distal attachments, this band is found to be formed from strong fibrous connective tissue, continuous with that which surrounds the pelvic blood vessels, and also that which comes through the sacro-sciatic notch. Some of the fibres appear also to be attached to the sides of the third and fourth pieces of the sacrum.

The central attachment of this band is described by Mackenrodt as being the supra-vaginal portion of the cervix. It was suggested to me at the beginning of this investigation that this must be impossible, because during the operation for vaginal hysterectomy the uterus is cleared from all its attachments by merely stripping with the finger, after the vaginal mucous membrane has been cut. As far as I can make out the ligament is inserted partly into the vault of the vagina and the lateral fornix, but also directly into the side of the uterus for a short distance below the point of entrance of the uterine artery. It constitutes the tissue which is generally clamped or tied along with the uterine artery in the operation for vaginal hysterectomy. Rather more than half the ligament, however, seems to be inserted into the lateral fornix and vault of the vagina. Certainly the

Digitized by Google

whole mass is not—as Mackenrodt asserts—attached to the uterus. I cannot follow him either in his statement that the ligament comes from what he calls the "fascia pelvis"—if by this he means the visceral layer of the pelvic fascia; for in spite of careful search I could find no definite connection between the ligament and this layer, any more than between any two closely superposed planes of fascia. It appears chiefly to come, as I have described above, from the connective tissue round the uterine and iliac vessels. Both Emmet and Schauta have laid emphasis on the importance of the part played by this pelvic connective tissue in maintaining the normal position of the uterus, though they did not ascribe it to a particular band.

The utero-sacral ligaments blend with the band near its insertion into the uterus.

In microscopic sections the ligament is found to consist largely of fibrous tissue, through which are scattered a good many bundles of smooth muscle fibre, and which support a fairly large number of veins and lymphatics, as well as the uterine artery.

Its action as regards the position of the uterus, according to Mackenrodt's idea, can best be explained by the fact that, coming as it does with the vessels and from the postero-lateral part of the pelvic wall, it would hold the cervix firmly with a pull in a slightly backward as well as lateral direction, and this pull, acting with the other factors described before—*i.e.*, the intra-abdominal pressure and the weight of the uterus itself—would tend to preserve the normal anteversion and anteflexion.

The question is, then, has this band as much right to the name of a ligament as the others which hold the uterus in position, and should it be described as a separate entity lying between the layers of the broad ligaments?

Digitized by Google

In the light of these investigations I think it is worthy of a more important position than that which it has held hitherto.

[1] Ueber die Ursachen der normal u path. Lagen des Uterus. Archiv. f. Gyn. xlviii. 393–421. 1895.

Professor Symington, in discussing the communication, said that there was, undoubtedly, a very firm tissue at the side of the cervix consisting mainly of a collection of small arteries and veins, the veins being much more numerous than the arteries. He was loth to add another "ligament" to the list, and was disposed to think the "ligament" described was the connective tissue in which the veins and uterine artery were embedded.

Digitized by Google

MODELS ILLUSTRATING THE MOVEMENTS OF THE WRIST BONES.

By H. M. JOHNSTON, M.B. Univ. Dub.,
Chief Demonstrator of Anatomy, T.C.D.

[Exhibited at the Section of Anatomy and Physiology, April 26th, 1907.]

This exhibit consisted of a series of painted plaster casts of the carpal and metacarpal bones, illustrating their relationships in the different positions of the hand. Twenty models were shown, prepared from ten wrist-joints, the palmar and dorsal aspects being represented in the case of each joint. They were prepared in the following way:—The hand of a fresh and suitable subject was placed in the desired position. In each case the forearm was supinated. When the back of the hand and forearm were in one plane—viz., in extension, ulnar, and radial flexion, the part was fastened to a board upon which the dorsal surface rested. In cases where the hand was dorsally or volar flexed, a splint or mould of plaster was made on which the part could be placed in the required angle of flexion. Formalin, full strength, was then injected through the brachial artery, and when the hand was sufficiently hardened it was removed by sawing through the forearm. All the soft tissues were dissected off its palmar aspect, and the bones exposed were made as clean as possible. Plaster of Paris was now poured over the exposed bones, but this mould was not immediately removed. The specimen was turned over, and the process was repeated, the dorsal surface now being dissected. Finally, the bones thus enclosed between palmar and dorsal moulds were separated and macerated. By fitting

Digitized by Google

the isolated and cleaned bones into these moulds in their proper position very faithful representations of their correct position could be obtained as viewed either from the dorsal or from the palmar aspect. The plaster casts exhibited were made from these specimens of the bones fitted into their moulds.

The casts showed the positions of the bones in—

Extension—the straight position of the hand.

Slight ulnar flexion—the position of the hand at rest.

Complete ulnar flexion.

Complete radial flexion.

Palmar flexion.

Dorsal flexion.

Semi-palmar and ulnar flexion.

Semi-palmar and radial flexion.

Semi-dorsal and ulnar flexion.

Semi-dorsal and radial flexion.

A detailed description of these, with illustrations, will be found in the *Journal of Anatomy and Physiology*, Vol. XLI. 1907.

Digitized by Google

ABSTRACTS.

SECTION OF ANATOMY AND PHYSIOLOGY.

President—A. F. Dixon, M.B. Univ. Dubl.

Sectional Secretary—E. P. M'Loughlin, M.B., R.U.I.

Friday, January 25, 1907.

The President in the Chair.

The Musculature of the Villi.

Mr. F. O'B. Ellison (introduced by the President) presented a note on the above. He pointed out that the villi of the dog are club-shaped, not pointed or cylindrical, as is generally described, and as is the case in the cat. This club-shaped extremity contains a large quantity of smooth muscle which is not connected with the muscularis mucosæ. The latter consists of three layers—outer longitudinal, middle circular, and inner longitudinal. The fibres derived from the muscularis mucosæ in the cat pass round the glands of Lieberkühn, and form a sort of sphincter for the latter. A number of microscopic sections of villi were shown in illustration of the points indicated, and one of the specimens showed compound villi.

Professor W. H. Thompson said that the appearance of round spaces with transverse sections of muscle in the first section shown would come to some of them as a revelation of the amount of muscle that could be present in villi. When the specimen first turned up he thought these were engorged capillaries filled with blood, but careful examination would convince anyone that this is not so, and they would find undoubted evidence that they were muscle fibres. He had shown the section to certain examiners in London; at first they said they were blood capillaries, but they afterwards agreed that such was not the case. Further facts that Mr. Ellison had made out made it exceedingly probable that there was far more muscle in the villi than came

Digitized by Google

up from the muscularis mucosæ. If so, it would make the working of the villi a mechanical process about which there would not be very much mystery. The investigation, however, was not complete.

A New Chemical Compound—"Phosphorus Muscarine."

MR. CALDWELL then communicated a series of notes detailing the process by which he had succeeded in producing, through the interaction of triethylphosphine with monochloracetal and monochloraldehyde, a new chemical compound—triethylphosphine-chloraldehyde or "phosphorus muscarine." Triethylphosphine combines with monochloracetal to give $(OC_2H_5)_2$, CH. CH_2. P $(C_2H_5)_3$. Cl., triethylphosphine-monochloracetal, which, on treatment with concentrated hydrochloric acid, yields the aldehyde CHO. CH_2. P $(C_2H_5)_3$. Cl., triethylphosphine-chloraldehyde. Monobromacetal likewise combines with triethylphosphine. Monochloraldehyde unites with triethylphosphine with the production of a syrup having a beautiful green fluorescence. The syrup placed *in vacuo* over sulphuric acid crystallises in a few days. Monobromaldehyde also combines with triethylphosphine forming a crystalline compound. The structure of these compounds is CHO. CH_2. P $(C_2H_5)_3$ X., where X denotes chlorine or bromine. The salts of this compound have been prepared, and their properties are being studied. On account of the similarity of structure of this compound to the corresponding nitrogen compounds, and inasmuch as muscarine occupies an intermediate position to choline and betaine, it is proposed at the present to name this compound phosphorus muscarine.

THE PRESIDENT exhibited a series of sections and X-ray photographs of the upper end of the femur to illustrate the arrangement of the cancellous lamellæ and of the structure known as the calcar femorale. The calcar femorale was shown to represent the posterior aspect of the bent upper end of the tubular femur. The bent portion of the tubular bone becomes oval in transverse section. In the young bone, what is afterwards the calcar forms the posterior surface of the neck, but, with the development of the trochanters and the projections for muscular attachments, this part of the surface is covered over and comes to lie deeply,

Digitized by Google

remaining, however, visible in section. When carefully examined in sections the outer and upper part of the lamellæ forming the calcar are seen to bend forwards so as to become continuous with the lamellæ which mark off the great trochanter and which form the upper and outer part of the neck of the tubular bone. In the young bone, before the great trochanter has become united, these lamellæ also form a part of the surface. The spirally-arranged supporting lamellæ, formerly described by Dr. W. S. Haughton and the author, are attached in right and left-handed spirals to the deep aspect of these sunken parts of the surface of the neck of the bone, in precisely the same manner as to the other parts of the inner aspect of the hollow shaft and neck. The tubular nature of the neck and the disposition of the spirally-arranged supporting lamellæ are well seen in X-ray photographs. Further, the arrangement of the parts, as seen in photographs and in sections, can be reproduced in a model constructed with right and left-handed spirally arranged thickenings, placed within a tube and bent in the same manner as the upper end of the femur. The calcar femorale and the lamellæ which mark off the great trochanter are parts of the surface in the young bone, and in the adult they form parts of the physiological surface of the bent portion of the femur considered as a structure through which the weight of the body is transmitted. Hence the lamellæ of the cancellous tissue which fill the neck of the bone are attached to them in a manner similar to that in which lower down they are attached to the inner wall of the upper part of the shaft.

Two Adult Male Subjects cut in the Long Median Plane.

Prof. Fraser exhibited the above. One had been cut four or five weeks previously, and the other, an ordinary injected dissecting-room subject (not specially prepared), the day before the meeting. The latter formed an object-lesson in the description of the hollow abdominal viscera, having the largest stomach that he had ever seen. It was equably dilated from cardiac to pyloric orifice. It had distended the right and left aspects of the body wall, and appreciably diminished the size of both liver and spleen. He referred also to the varying relations of the ventral aorta to the sternum, to the presence of the embryonic cranial flexure in the adult, which did not cease with the bony dorsum sellæ, but

Digitized by Google

extended as soft supporting tissue to the roof of the fossa interpeduncularis, a point which had great significance in the numerous measurements of the skull. He also drew attention to the variations in the distance between the perineal skin covering and the posterior extension of the body cavity in both male and female, and more particularly in the young. These sections were very instructive and much appreciated by students in the ordinary dissecting-room teaching.

Friday, April 26, 1907.

THE PRESIDENT in the Chair.

Specimens to Display the Anatomy of the Air-sinuses communicating with the Nasal Cavities.

PROFESSOR SYMINGTON showed a number of specimens of the air-sinuses of the nose which had been exposed by a method recommended by Professor Gustav Killian of Freiburg. The bone superficial to the sinus was removed, leaving, however, narrow bars where necessary for support. In preparations hardened in formol the lining membrane of the sinuses was shown to be so firm and resilient that it retained its natural form.

A Dissected Head, with Numerous Photographs and Drawings.

PROFESSOR SYMINGTON exhibited a dissected head and numerous photographs and drawings to illustrate a method he had devised to determine the relations of the superficial and deep parts of the brain to the scalp and skull. The head, previously thoroughly hardened by the injection of formol, was divided in the median plane. All the soft parts were removed *en masse* from the lateral aspect of each half of the skull and from the face. Each half of the head was photographed from the median and lateral aspects, and the two were placed in contact and photographed from above, behind and the front. The midbrain was cut across, and the parts of the brain below the level of the section removed. The dura mater was then carefully separated form the inner side of the skull beginning below, the nerves, &c., being divided as close as possible to their bony foramina. After the dura mater had been separated from the posterior part of the skull the cerebral

Digitized by Google

hemisphere was removed and the detachment of the dura mater completed. Each half of the brain was divided by coronal sections into a series of slabs, and one of the cut surfaces of each photographed. The various pieces were placed in contact, and the hemisphere photographed from the same aspects as the skull had been. The brain was replaced in the dura mater, and this was photographed from the lateral aspect. All the photographs were taken the natural size with a vertical camera and a long focus lens. The advantages claimed for this method were that all the parts of the head were preserved, and could be readily separated and replaced in their natural position, and that from the photographs figures could be constructed showing orthogonal projections of the various parts of the brain on to the lateral, anterior, posterior or superior aspects of the skull and scalp.

Lateral Fixation of the Cervix Uteri.

Dr. Ella Ovenden read a paper on above [see p. 472, *ante*].

Models Illustrating the Movements of the Wrist Bones.

Dr. H. M. Johnston exhibited above [see p. 478, *ante*].

Fœtus cleared by the Schultze Method.

The President exhibited a specimen of above, which showed the condition of the skeleton in the fourth month.

Double Ureters.

Professor Fraser exhibited an aged female subject with double ureters on the right and left sides of the body. These were separate along their entire lengths, and at the bladder the two orifices on each side opened independently about 1 cm. apart. The right and left kidneys were of the normal size. On dissection, however, they were found to be apparently double. Each had two arteries from the aorta (the left had, in addition, a third from the aorta, entering the kidney at its caudal extremity; from this extremity a large vein ran to the left common iliac). Of the two ureters on either side each entered a separate hilum, each had a separate pelvis, which subdivided the lower into three and the upper into two major calyces. Each hilum was separated by a complete transverse bridge of cortical and medullary substance. The two right

Digitized by Google

ureters lay behind the kidney, that is, in the ordinary relation. The upper ureter of the left kidney lay also behind, but the lower passed out in front, thus having the same relation to the kidney structure as in every case of the horse-shoe form of which he had had experience.

Sacral Nerves.

Professor Fraser also gave a brief summary of the condition in which he found the posterior primary divisions of the first four sacral nerves, illustrating his remarks on the board. In addition to the loops between each of these nerves, usually described on the posterior surface of the sacrum, the first nerve rarely gave a large branch to the skin—it came out when present close to the posterior superior iliac spine. The second nerve passed externally always between the long and short posterior sacro-iliac ligaments, and was joined at the usual segmental intervals by the third and fourth nerves. These three formed a large nerve, which was buried in the ligamentum sacro-tuberosum (great sacro-sciatic). After traversing this ligament, external to the costal and transverse elements of the sacrum, the nerve broke up into the two or three branches usually described as passing through the gluteus maximus near its coccygeal origin to the skin.

Dr. H. M. Johnston said the first sacral nerve had been seen coming down to the level of the great trochanter, eight inches long. He had traced three ends, given off exteriorly, back from their position in the skin to the large cord.

Professor Symington said the question of the ureters was of practical importance in connection with the diagnosis of the condition of the kidney during life. During the winter he had seen a body in which there was a typical horse-shoe kidney and two ureters opening in a perfectly normal manner into the bladder, so that a cystoscopic examination could not disclose anything abnormal in the arrangement of the kidneys.

Digitized by Google

Digitized by Google

INDEX

[*The names of Contributors are printed in* SMALL CAPITALS.]

Abdominal operations, T. E. GORDON, 163.
Abscess of cerebellum, W. BOXWELL, 418.
Addison's disease, M. DEMPSEY, 123.
Aneurysm of the thoracic aorta, W. A. WINTER, 151.

Bacteriology of cerebro-spinal meningitis, E. J. McWEENEY, 367.
BALL, C. A. K., gangrenous gall-bladder, 225.
BALL, C. A. K., sphincteric control of the male bladder, 153.
BALL, SIR C. B., the treatment of non-malignant gastric ulcer, 80.
BOXWELL, W., abscess of cerebellum, 418.

Cæsarean section, two cases, C. Y. PEARSON, 327.
CALDWELL, W., "phosphorus muscarine," 481.
Carcinoma of the breast, JAMESON JOHNSON, 417.
Cardiac murmurs, R. T. SMITH, 1.
Cerebello-pontine cyst, G. J. PEACOCKE, 142.
Cerebro-spinal fever, G. J. PEACOCKE, 126.
Cerebro-spinal meningitis, W. G. HARVEY, 420.
Chorea, maniacal, J. MAGEE FINNY, 94.
Chronic pancreatitis, W. I. de C. WHEELER, 180.
Circulation, study of the, G. A. GIBSON, 23.
Clinical report of the Rotunda Hospital, E. H. TWEEDY, &c., 272.
CRAIG, J., lympho-sarcoma of the lung, 146.
Cryoscopy of the urine, L. G. GUNN, 349.

Delivery accomplished by pubiotomy, E. H. TWEEDY, 266.
DEMPSEY, M., Addison's disease, 123.
Deny's tuberculin, tuberculosis treated by, F. J. DUNNE, 130.
Dissection of the head, J. SYMINGTON, 483.
DONNELLY, T., the Poor Law Medical Service in Ireland, 421.
Double ureters, A. FRASER, 484.
DUNNE, F. J., tuberculosis treated by Deny's tuberculin, 130.

EARL, H. C., and W. G. HARVEY, pancreatitis, 406.

Digitized by Google

Ellison, F. O'B., musculature of the villi, 480.
Enlarged prostate, L. G. Gunn, 170.

Femur, fractures of the shaft of the, Sir T. Myles, 188.
Finny, J. Magee, maniacal chorea, 94.
"Formaline steriliser." H. Jellett, 340.
Fractures of the shaft of the femur, Sir T. Myles, 188.
Fraser, A., double ureters, 484.
Fraser, A., sacral nerves, 485.
Fraser, A., subjects cut in the long median plane, 482.
Frontal sinusitis, R. H. Woods, 224.
Functional cardiac murmurs, R. T. Smith, 1.

Gangrenous gall-bladder, C. A. K. Ball, 225.
Gastric ulcer, J. Little, 70.
Gastric ulcer, non-malignant, Sir C. B. Ball, 80.
Gastric ulcer, J. A. Lindsay, 88.
Gastric ulcer from a surgical standpoint, A. B. Mitchell, 91.
Gibson, G. A., our debt to Ireland in the study of the circulation, 23.
Gibson, M. G., pubiotomy, 256.
Gordon, T. E., limits of abdominal operations, 163.
Gunn, L. G., cryoscopy of the urine, 349.
Gunn, L. G., sarcoma of femur, 419.
Gunn, L. G., treatment of enlarged prostate, 170.
Gunn, L. G., urinary tuberculosis, 419.

Harvey, W. G., cerebro-spinal meningitis, 420.
Harvey, W. G., pathological effects of Röntgen rays on animal tissues. 408.
Harvey, W. G., and H. C. Earl, pancreatitis, 406.
Holmes, A., and E. H. Tweedy, clinical report of the Rotunda Hospital, 272.

Intestinal obstruction, W. Taylor, 206.

Jellett, H., "formaline steriliser," 340.
Jellett, H., technique of operations on the uterine appendages, 233.
Jellett, H., uterus with cancer of cervix and fundus, 338.
Johnson, Jameson, carcinoma of the breast, 407.
Johnston, H. M., movements of the wrist bones, 478.

Kinkead, R. J., and R. J. Rowlette, labour obstructed by a fibroid tumour, 227.

Labour obstructed by a fibroid tumour, R. J. Kinkead, and R. J. Rowlette, 227.

Digitized by Google

Lateral fixation of cervix uteri, ELLA OVENDEN, 472.
LAW, S. H., leontiasis ossea, 176.
Leontiasis ossea, S. H. LAW, 176.
LINDSAY, J. A., gastric ulcer, 88.
LITTLE, J., the treatment of gastric ulcer, 70.
Liver with cirrhosis and carcinoma, A. R. PARSONS, 414.
Lymphatism, A. R. PARSONS, 414.
Lympho-sarcoma of the lung, J. CRAIG, 146.

McWEENEY, E. J., bacteriology of cerebro-spinal meningitis, 367.
McWEENEY, E. J., tuberculosis in the Vice-Regal Poor Law Commission, 438.
McWEENEY, E. J., uncinaria duodenalis, 411.
Maniacal chorea, J. MAGEE FINNY, 94.
Method of Bier in gynæcology, J. S. SHEILL, 345.
MITCHELL, A. B., gastric ulcer from a surgical standpoint, 91.
MOORHEAD, T. G., movable spleen, 108.
MOORHEAD, T. G., specimen after Talma-Morrison operation, 412.
Movable spleen, T. G. MOORHEAD, 108.
Musculature of the villi, F. O'B. ELLISON, 480.
Myelogenous leukæmia, A. R. PARSONS, 137.
MYLES, SIR T., fractures of the shaft of the femur, 188.

Obscure case of nervous disease, W. A. WINTER, 151.
O'CARROLL, J. F., suffocative hydrothorax, 355.
Organisms from cerebro-spinal meningitis, A. H. WHITE, 416.
Our debt to Ireland in the study of the circulation, G. A. GIBSON, 23.
Ovarian cyst, SIR W. J. SMYLY, 339.
OVENDEN, ELLA, lateral fixation of the cervix uteri, 472.

Pancreatitis, H. C. EARL and W. G. HARVEY, 406.
PARSONS, A. R., a case of lymphatism, 414.
PARSONS, A. R., liver with cirrhosis and carcinoma, 414.
PARSONS, A. R., myelogenous leukæmia, 137.
PARSONS, A. R., pseudo-renal colic, 117.
PARSONS, A. R., splenomegaly with eosinophilia, 15.
Pathological affects of Röntgen rays on animal tissues, W. G. HARVEY, 408.
Pathological report of the Rotunda Hospital, R. J. ROWLETTE, 309.
PEACOCKE, G. J., cerebello-pontine cyst, 142.
PEACOCKE, G. J., cerebro-spinal meningitis, 126.
PEARSON, C. Y., two successful cases of Cæsarean section, 327.
"Phosphorus muscarine," W. CALDWELL, 481.
Poor Law Medical Service in Ireland, T. DONNELLY, 421.

Digitized by Google

PRINGLE, S., sacro-coccygeal teratoid tumour, 358.
Pseudo-renal colic, A. R. PARSONS, 117.
Pubiotomy, M. G. GIBSON, 256.
Pubiotomy, delivery accomplished by, E. H. TWEEDY, 266.

Rotunda Hospital, clinical report, E. H. TWEEDY and A. HOLMES, 272.
Rotunda Hospital, pathological report, R. J. ROWLETTE, 309.
ROWLETTE, R. J., Pathological report of the Rotunda Hospital, 309.
ROWLETTE, R. J., and R. J. KINKEAD, labour obstructed by a fibroid tumour, 227.

Sacral nerves, A. FRASER, 485.
Sacro-coccygeal teratoid tumour, S. PRINGLE, 358.
Sarcoma of femur, L. G. GUNN, 419.
SHEILL, J. S., the method of Bier in gynæcology, 345.
SHEILL, J. S., repeated twin abortions and ventro-suspension, 334.
SMITH, R. T., so-called functional cardiac murmurs, 1.
SMYLY, SIR W. J., ovarian cyst, 339.
Sphincteric control of the male bladder, C. A. K. BALL, 153.
Splenomegaly with eosinophilia, A. R. PARSONS, 15.
STRITCH, G. R. S., the State and syphilis, 448.
Subjects cut in the long median plane, A. FRASER, 482.
Suffocative hydrothorax, J. F. O'CARROLL, 355.
SYMINGTON, J., dissected head, 483.

Talma-Morrison operation, T. G. MOORHEAD, 412.
TAYLOR, W., intestinal obstruction, 206.
Technique of operations on the uterine appendages, H. JELLETT, 233.
Traumatic rupture of the heart, W. J. de C. WHEELER, 413.
Tubercular knee-joint, L. G. GUNN, 419.
Tuberculosis in the report of the Vice-Regal Poor Law Commission, E. J. McWEENEY, 438.
Tuberculosis treated by Deny's tuberculin, F. J. DUNNE, 130.
TWEEDY, E. H., clinical report of the Rotunda Hospital, 272.
TWEEDY, E. H., delivery accomplished by pubiotomy, 266.
Twin abortions and ventro-suspension, J. S. SHEILL, 334.

Urinary tuberculosis, L. G. GUNN, 413.
Uterine appendages, technique of operations on the, H. JELLETT, 233.
Uterus with cancer of cervix and fundus, H. JELLETT, 338.

Vaccine inoculation and the opsonic index, A. H. WHITE, 379.

Digitized by Google

WHEELER, W. I. de C., chronic pancreatitis, 180.
WHEELER, W. I. de C., traumatic rupture of the heart, 413.
WHITE, A. H., organisms from cerebro-spinal meningitis, 416.
WHITE, A. H., vaccine inoculation and the opsonic index, 379.
WINTER, W. A., aneurysm of the thoracic aorta, 151.
WINTER, W. A., obscure case of nervous disease, 151.
WOODS, R. H., frontal sinusitis, 224.
Wrist bones, movements of the, H. M. JOHNSTON, 478.

Printed by JOHN FALCONER, 53 Upper Sackville Street, Dublin.

Digitized by Google

Digitized by Google

NB361

Digitized by Google

Digitized by Google